

JUL 6 1965

CRPL-F 250 PART B

FOR OFFICIAL DISTRIBUTION

PART B  
SOLAR - GEOPHYSICAL DATA

ISSUED

JUNE 1965

U. S. DEPARTMENT OF COMMERCE  
NATIONAL BUREAU OF STANDARDS  
CENTRAL RADIO PROPAGATION LABORATORY  
BOULDER, COLORADO



## SOLAR - GEOPHYSICAL DATA

### CONTENTS

- (i) Revisions to Descriptive Text

#### I DAILY SOLAR INDICES

- (a) Relative Sunspot Numbers and 2800 Mc/s Solar Flux - April, May 1965
- (b) Graph of Sunspot Cycle

#### II SOLAR CENTERS OF ACTIVITY

- (a) Calcium Plage and Sunspot Regions - May 1965
- (b) Magnetic Classifications of Sunspots (Mt. Wilson) - May 1965
- (c) Provisional Coronal Line Emission Indices - May 1965

#### III SOLAR FLARES

- (a-j) Optical Observations - May 1965
- (k) Flare Patrol Observations - May 1965
- (l-o) Optical Observations - February 1965
- (p) Flare Patrol Observations - February 1965
- (q) Ionospheric Effects (SWF-SEA-SCNA-SPA-SES-SFD-Bursts) - April 1965
- (r) 30 Mc/s - Riometer Events (Frobisher Bay) - April 1965

#### IV SOLAR RADIO WAVES

- (a) 2800 Mc/s Outstanding Occurrences (ARO-Ottawa; DRAO-Penticton) - May 1965
- (b) 108 Mc/s Outstanding Occurrences (NBS-Boulder) - May 1965
- (c-e) 7.6-41 Mc/s Spectral Observations (HAO-Boulder) - May 1965
- (f-k) 9.1 cm Spectroheliograms (Stanford) - May 1965
- (l-p) 21 cm Spectroheliograms (Fleurs) - Dec. 1964, Jan., Feb. 1965

#### V COSMIC RAY INDICES

- (a) Neutron Monitors (Churchill - Climax - Dallas) - April 1965
- (b) Neutron Monitor (Deep River) - April 1965

#### VI GEOMAGNETIC ACTIVITY INDICES

- (a) C, Kp, Ap and Selected Quiet and Disturbed Days - April 1965
- (b) Chart of Kp by Solar Rotations - 1965

#### VII RADIO PROPAGATION QUALITY INDICES

- (a) CRPL Quality Figures and Forecasts - North Atlantic and North Pacific - April 1965
- (b) Graphs Comparing Forecasts and Observed Quality - High Latitude - April 1965
- (c-d) Graphs of Useful Frequency Ranges - North Atlantic - April 1965

#### VIII ALERT PERIODS AND SPECIAL WORLD INTERVALS

- (a) IQSY Alert Periods - May 1965



The descriptive text was republished in November 1964. Addenda have been given in the introduction to each of the CRPL-F Part B reports, December 1964 through May 1965.

Note:

The NRL Solar Radiation Monitoring Satellite data for April 1964 (issued in CRPL-F 249 B) should have been labelled revised. The data presented for that month were more complete than those given in CRPL-F 241 B issued September 1964.

SOLAR RADIO WAVES

21 cm Spectroheliograms

A daily series of radio spectroheliograms are presented from the "Fleurs" Radio Astronomy Field Station of the University of Sydney, Sydney, Australia, under the direction of Professor W. N. Christiansen. East-West and North-South arrays in the form of a cross give pencil beam scans with a resolution of about three minutes of arc. This program is supported by CRPL through National Aeronautics and Space Administration assistance.

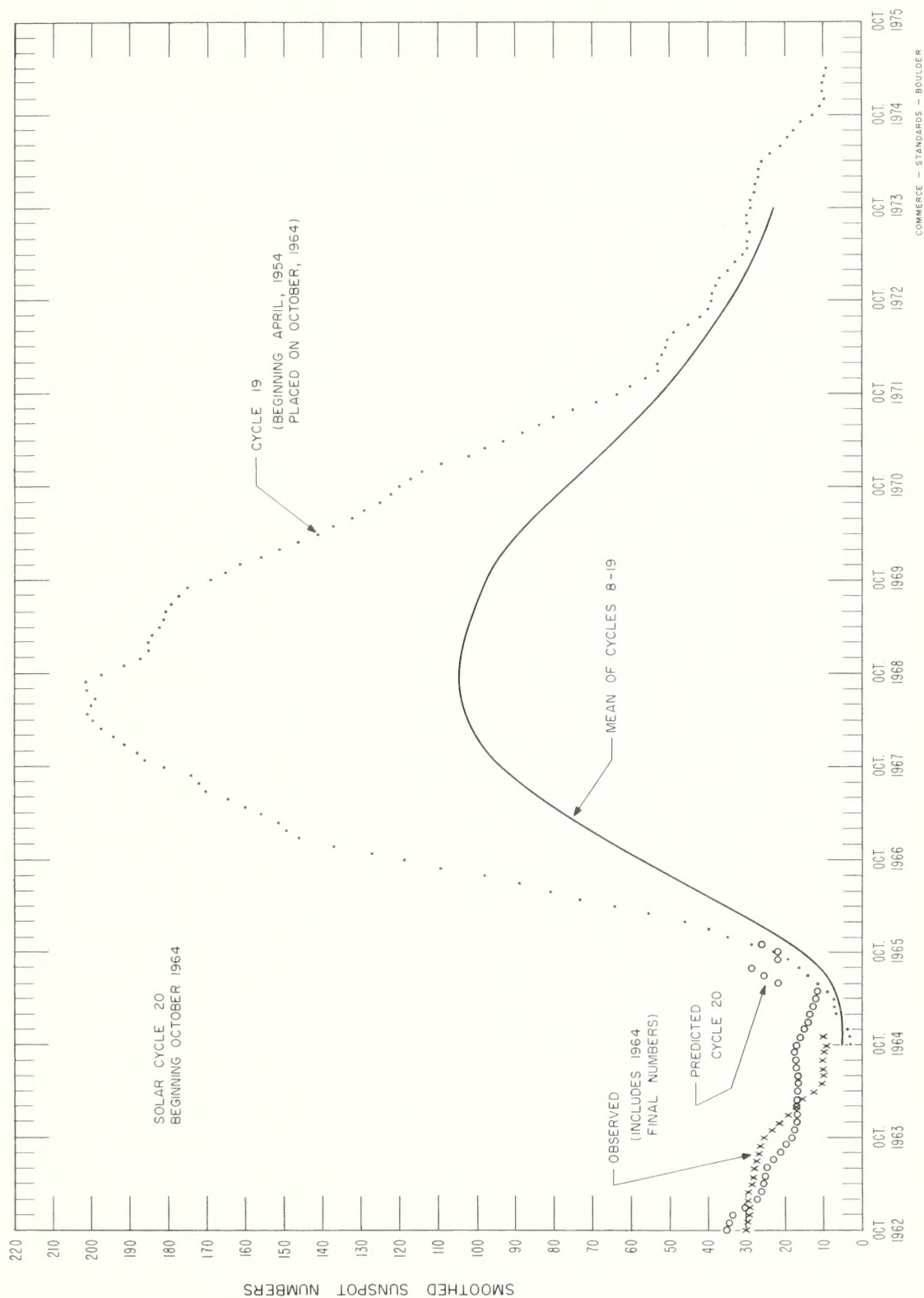
The maps show the distribution of radio emission across the solar disk at a wavelength of 21 cm by means of brightness temperature values. The unit of brightness temperature is  $1700^{\circ}\text{K}$ . It gives about the same central temperature for the quiet sun as was found at the last minimum epoch ( $47,000^{\circ}\text{K}$ ). The noise level is about 5 units. Contours have been sketched at the 50 and 100 unit levels to draw attention to the brighter radio plage regions. Since there is equatorial limb brightening of the quiet sun, weak radio plagues in the center of the disk are discriminated against. Below each number is a dot marking the point on the disk to which the number specifically refers.

## DAILY SOLAR INDICES

April 1965	American Relative Sunspot Numbers $R_A$
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	5
12	10
13	11
14	12
15	17
16	12
17	14
18	8
19	0
20	1
21	13
22	19
23	18
24	10
25	10
26	16
27	12
28	3
29	0
30	0
Mean:	6.4

May 1965	Zürich Provisional Relative Sunspot Numbers $R_Z$	Daily Values Solar Flux at 2800 Mc, Ottawa, Canada Flux	
		S	$S_A$
1	0	71.1	72.2
2	15	70.8	71.9
3	8	70.7	71.9
4	8	69.7	70.9
5	7	69.0	70.2
6	0	70.4	71.7
7	11	71.4	72.7
8	17	72.0	73.4
9	9	72.4	73.8
10	0	72.1	73.5
11	0	71.1	72.5
12	15	71.8	73.3
13	23	74.4	76.0
14	25	75.4	77.0
15	37	80.5	82.3
16	42	86.3	88.3
17	62	91.1	93.2
18	79	90.4	92.6
19	82	92.4	94.6
20	78	94.7	97.0
21	75	92.8	95.1
22	65	92.2	94.5
23	51	86.2	88.4
24	47	BURST	BURST
25	30	81.0	83.1
26	24	77.9	80.0
27	7	76.0	78.1
28	0	74.5	76.5
29	0	73.7	75.8
30	0	74.0	76.1
31	0	71.6	73.6
Mean:	26.4	77.9	79.7





PREDICTED AND OBSERVED SUNSPOT NUMBERS

## CALCIUM PLAGE AND SUNSPOT REGIONS

MAY 1965

May 1965	LAT.	MCMATH PLAGE NUMBER	RETURN OF REGION	CALCIUM PLAGE DATA						SUNSPOT DATA		
				CMP VALUES		HISTORY	AGE (ROTA- TIONS)	DATE FIRST SEEN	DURA- TION (DAYS)	CMP VALUES		HISTORY
				AREA	INT.					AREA	COUNT	
1.8	N09	7795 (1)	New	100	1	b - d	1	5/2	1			
2.1	S02	7792 (1)	New	(100)	(1.5)	b - d	1	4/29	1			
2.7	N20	7796 (1)	New	400	1	b - d	1	5/2	1			
3.2	N34	7797	New	200	1.5	b - d	1	5/2	4			
3.8	N35	7799 (2)	New	(400)	(3.5)	b / d	1	5/7	3	(40)	(6)	b - l
5.1	S08	7793 (1)	New	(100)	(1)	l - d	1	4/29	1			
5.6	N36	7798	New	(100)	(1)	b - d	1	5/6	2			
7.5	N27	7794	New	1400	3	l / l	1	5/1	14	(10)	(2)	b - d
9.5	S12	7805	New	(200)	(1.5)	b - l	1	5/11	5	(10)	(4)	b - d
9.9	N13	7806	New	(300)	(3)	b - l	1	5/13	3			
10.0	S05	7800 (1)	New	(100)	(1.5)	b - d	1	5/7	1			
11.0	S02	7811 (1)	New	(100)	(1.5)	b - d	1	5/15	1			
11.7	N21	7807	New	(200)	(1.5)	b - d	1	5/14	2			
12.1	N03	7804 (1)	New	(100)	(1)	b - d	1	5/10	1			
13.0	N29	7801	New	300	1	b V d	1	5/7	8			
14.9	N05	7802	7771	1300	2	l A d	3	5/8	12			
15.4	N21	7803	7779	800	3.5	l A l	2	5/9	13	180	4	b A d
16.3	S29	7808	New	100	1	b - d	1	5/14	2			
16.3	S23	7815 (1)	New	(100)	(1)	b - d	1	5/19	1			
16.6	N19	7813	New	(600)	(4)	b A l	1	5/18	5	(10)	(7)	b - d
16.8	N25	7819 (1)	New	(200)	(2.5)	b - d	1	5/20	1			
19.0	N08	7816	New	300	2.5	b \ d	1	5/19	4	10	5	b - d
19.7	S39	7822 (1)	New	(100)	(1)	b - d	1	5/22	1			
19.8	S36	7817	New	100	1	b - d	1	5/19	3			
20.0	N16	7820 (1)	New	300	1	b - d	1	5/20	1			
20.0	S10	7825 (1)	New	(100)	(1.5)	b - d	1	5/24	1			
20.9	S24	7810	7790	(200)	(1.5)	l \ d	2	5/14	5			
21.2	N23	7809	New	4000	3.5	l / l	1	5/14	14	290	55	l A l
21.3	N33	7814 (1)	New	(200)	(1)	b - d	1	5/18	1			
21.9	S42	7826 (1)	New	(100)	(1)	b - d	1	5/24	1			
23.0	N24	7812	New	3600	3	l / l	1	5/16	14	70	28	b \ d
23.8	N19	7821 (1)	New	(200)	(1)	b - d	1	5/20	1			
24.0	N41	7829	New	(200)	(1)	b - d	1	5/27	2			
25.1	N20	7834 (1)	New	(100)	(2)	b - d	1	5/29	1			
25.5	S33	7823 (1)	New	(100)	(1)	b - d	1	5/22	1			
25.8	N33	7818 (1)	New	(300)	(1)	l - d	1	5/19	1			
25.9	N32	7830 (1)	New	(100)	(2)	b - d	1	5/28	1			
26.9	N07	7835	New	(200)	(2.5)	b - d	1	5/29	2			
28.3	S26	7841 (3)	New	(1400)	(3.5)	b - l	1	6/3	1			
29.0	N30	7824	New	(300)	(1)	l - d	1	5/22	4			
31.1	N29	7827	New	500	2.5	l A l	1	5/24	13			
31.9	S03	7831 (1)	New	(100)	(1.5)	b - d	1	5/28	1			

COMMERCE - STANDARDS - BOULDER

- (1) These small and ephemeral plages were seen for only one day.  
 (2) Region 7799 may have formed in the same position as ephemeral plage 7797.  
 (3) Region 7841 forms on the disk very near the west limb.

No calcium spectroheliograms were secured at the McMath-Hulbert Observatory on May 17 and 22, 1965.



The equipment at Mt. Wilson is being overhauled, therefore no magnetic observations were made during the month of May 1965.

## PROVISIONAL CORONAL LINE EMISSION INDICES

MAY 1965

CMP May 1965	North East quadrant (observed 7 days earlier)				South East quadrant (observed 7 days earlier)				South West quadrant (observed 7 days later)				North West quadrant (observed 7 days later)			
	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>
1	3	4	10	18	3	3	11	15	x	x	x	x	x	x	x	x
2	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
3	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
4	x	x	x	x	x	x	x	x	0	0	x	x	6	28	x	x
5	5	8	15	21	0	1	4	5	x	x	x	x	x	x	x	x
6	16	32	12	23	1	3	13	15	x	x	x	x	x	x	x	x
7	40	87	19	38	2	3	9	12	x	x	x	x	x	x	x	x
8	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
9	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
10	x	x	12	18	x	x	12	19	x	x	x	x	x	x	x	x
11	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
12	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
13	9	16	14	13	5	7	14	16	x	x	x	x	x	x	x	x
14	15	44	15	17	5	14	11	12	x	x	x	x	x	x	x	x
15	x	x	x	x	x	x	x	x	0	0	x	x	37	81	x	x
16	8	13	11	16	x	x	x	x	x	x	x	x	x	x	x	x
17	x	x	12	14	x	x	8	12	x	x	x	x	x	x	x	x
18	6a	11a	x	x	0a	3a	x	x	x	x	x	x	x	x	x	x
19	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
20	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
21	x	x	x	x	x	x	x	x	5	6	x	x	82	180	x	x
22	x	x	x	x	x	x	x	x	0a	0a	0a	0a	80a	168a	4a	10a
23	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
24	x	x	x	x	x	x	x	x	5	8	0	0	11	25	4	10
25	x	x	x	x	x	x	x	x	x	x	x	x	x	x	14	20
26	x	x	x	x	x	x	x	x	5	8	7a	10a	10	14	9a	12a
27	x	x	x	x	x	x	x	x	x	x	10	14	x	x	x	x
28	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
29	0a	0a	7	13	0a	0a	14	17	x	x	x	x	x	x	x	x
30	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
31	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

x = no observations

\* = yellow line emission

a = index computed from low weight data

COMMERCE - STANDARDS - BOULDER

# SOLAR FLARES

MAY 1965

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURA TION — MINUTES	IM POR TANCE	OBS COND	MEASUREMENTS				REMARKS	
		START	END	APPROX LAT.	APPROX LONG REGION				TIME U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH He		MAX. INT I <sub>g</sub>
MITK	01 MAY 1965	0432	0451	N29 E90	7794	124 D	1-	C	0824	.23	1.31			G
KANZ	01	0723	E 0927	N27 E90	7794		2							AG
ARCE	01	0824	E 0835 D	N29 E90	7794		1-							
ARCE	01	0925	E 0943 D	N29 E90	7794		1-		0925	.42	2.40		129	DG
CATA	01	0930	E 1000 D	N30 E90	7794		1-	1 P	0934	.30	1.71			E
HUAN	01	1426	1437	N28 E90	7794		1-	C	1428	.25			26	CD
SACP	01	1427	1436 D	N28 E85	7794		1-			.86				
KANZ	01	1547	1617 D	N28 E85	7794		1-	C		.47			19	
SACP	01	1854	1907	N29 E80	7794		1-	C	2005	.20	1.00		10	
LOCK	01	2001	2013	N30 E90	7794		1-							
SACP	02	0008	0015	N27 E76	7794		1-	C		.17	.46		19	
SACP	02	0045	0100	N28 E74	7794		1-			.69	1.71		23	
MITK	02	0045	0101	N28 E78	7794		1-	V	0049	2.06		7.51	122	D
MANI	02	0045	0106	N28 E80	7794		1-	2	0051	.45	1.08			
KANZ	02	0740	E 0805	N28 E75	7794	25 D	1-			.80				
MANI	02	0757	E 0812	N28 E76	7794		1-	2	0805	.25	.58			CEHJKR
MANI	02	0843	E 0850	N28 E76	7794		1-	2	0845	.10		2.60		E
ONDR	02	1207	1241	N30 E64	7794	34	1+	3	1214	.23				D
HUAN	02	1233	E 1240 D	N27 E69	7794		1-	P	1233	.10				DK
HUAN	02	1405	1410	N27 E71	7794		1-	C	1407	.20				
HUAN	02	1743	1813	N27 E63	7794		1-	C	1800	.10				
HUAN	02	1928	2058	N28 E65	7794		1-	C	1945	.20				
HUAN	02													
LOCK	06	2140	2210	N30 E80	7801		1-	C	2158	.10	.30		20	
LOCK	07	0045	0112	N30 E80	7801		1-	C	0100	.10	.30		20	
ARCE	07	0842	E 0920 D	N34 W48	7799		1-	2	0910	.78	1.41			
KANZ	07	1400	E 1402	N36 E46	7799		1-							D
SACP	07	1432	1510	N36 W49	7799		1-	C		.60	.90		18	E
HUAN	07	1436	1454	N37 W48	7799		1-	C	1442	.25	.53			D
KANZ	07	1444	1455 D	N36 E46	7799		1-	C		.25	.53			D
HUAN	07	1511	1522	N36 W49	7799		1-	C	1516	.25	.53			DH
MCHA	07	1557	1658	N35 W52	7799		1-	3 C	1602	.30	.60			D
MITK	08	0241	0321	N36 W58	7799		1-	C						D
MITK	08	0500	0512	N36 W60	7799		1-	C						D
MITK	08	0717	0738	N36 W59	7799		1-	C						E
MITK	08	0743	0800	N36 W60	7799		1-	C						D
ARCE	08	0817	E 0902 D	N34 W62	7799		1-	2	0838	.56	1.35			D
KANZ	08	0818	E 0850 D	N36 W60	7799		1-							
ARCE	08	1000	E 1016	N34 W62	7799		1-	2	1000	.49	1.18			D
HUAN	08	1412	E 1516 D	N37 W62	7799	50 D	1-	P	1502	.45	2.40			E
MCHA	08	1420	1510	N35 W63	7799		1-	C	1438	.87	1.66		20	EH
SACP	08	1423	1507	N35 W63	7799	22 D	1-		1544	.50	1.50			EH
KANZ	08	1450	E 1512	N35 W63	7799		1-	2 C	1715	.50	1.50			EH
MCHA	08	1543	1548	N35 W68	7799		1-	1 P	1735	.20				E
MCHA	08	1710	E 1723 D	N35 W69	7799		1-	P						
MCHA	08	1720	E 1800 D	N35 W63	7799		1-							
MCHA	08	1805	E 1830 D	N35 W69	7799	25 D	1	2 P	1807	.80	2.40			E

COMMERCE - STANDARDS - BOULDER

## SOLAR FLARES

MAY 1965

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS COND	MEASUREMENTS			REMARKS	
		START	END	APPROX LAT	APPROX MER DIST	MONTH REGION				TIME U T	MEAS AREA Sq Deg	CORR AREA Sq Deg		MAX WIDTH He
— — — — — — — — — —	MAY 1965													
	08	1806	1815 D	N36 W63	7799		1-	P	1811	.25				E
	08	1906	1919	N37 W70	7799		1-	2 C	1911	.40	1.20			EH
	08	1910	1934 D	N36 W63	7799		1-	P	1916	.34				E
	08	2011	E 2013 D	N36 W63	7799		1-	P	2011	.27				E
	08	2053	E 2055 D	N36 W63	7799		1-	2 C	2053	.20	1.00			E
	08	2054	2100	N37 W70	7799		1-		2055	.30				E
	09	1000	E 1110 D	N34 W78	7799		1-	2	1002	.14	.45		132	D
	09	1157	1214	N35 W88	7799		1-	2 C	1202	.20				D
	09	1259	1308	N35 W88	7799		1-	2 C	1302	.20				D
— — — — — — — — — —	09	1435	1455	N37 W80	7799		1-	C	1446	.13				DK
	09	1511	1531	N37 W80	7799		1-	C	1520	.25				D
	09	1515	1531	N35 W76	7799		1-	C	1520	.17	.48		18	D
	09	1518	1525	N35 W88	7799		1-	2 C	1521	.20				D
	09	1523	1550	N23 E86	7803		1-	2 C	1528	.30				D
	09	1612	E 1629 D	N23 E86	7803		1-	1 P	1612	.20				D
	09	1615	1629	N38 W85	7799		1-	C	1625	.20				DK
	09	1859	1931	N37 W90	7799		1-	C	1912	.38				D
	09	1900	E 1914 D	N35 W90	7799		1-	1 P	1911					DK
	09	2016	2043	N38 W90	7799		1-	C	2027	.25				
— — — — — — — — — —	10	0620	0930 D	N36 W90	7799	190 D	1	5	0818	.38	2.16		118	FG
	10	0805	E 0850 D	N34 W90	7799		1-	2	0810	.34	1.93			
	10	0740	E 0900	N46 W90	7799	80 D	1							
	10	0930	E 0935 D	N34 W90	7799		1-	2	0930	.20	1.14			
	10	1145	E 1218	N36 W90	7799	33 D	1+	D						
	10	1246	1252	N35 W90	7799		1-							
	12	0459	0515	N24 E46	7803		1-	C						GH
	12	0633	0637	N22 E41	7803		1-	2 C						DGH
	12	0828	E 1301	N23 E42	7803		1-	2	0828	.75	1.12			G
	12	1301	1316	S15 W33	7805		1-	3	1305	.80	1.00		153	E
— — — — — — — — — —	12	1320	E 1415 D	S15 W40	7805		1-							E
	12	2044	2105 D	N22 E35	7803		1-	2 C	2047	.50	.70			EH
	12	2045	2103 D	N21 E35	7803		1-	P	2047	.20	.27			EK
	12	2125	E 2137 D	N20 E34	7803		1-	P	2128	.25	.33			EK
	12	2343	U 2359 U	N23 E32	7803		1-	C		1.31	1.47		18	
	14	0930	1007	N28 E90	7809		1-	D						E
	14	1037	E 1113	S15 W64	7805		1-	2 C	1053	.50	.80			
	14	1040	1115	S13 W65	7805	35	1+	D						
	14	1046	E 1103	S10 W60	7805		1-	2	1047	.50	.90		157	DG
	14	1120	KAND 1126	N28 E90	7809	6	1	D						
— — — — — — — — — —	14	1136	1146	N28 E90	7809		1-	D						
	15	0612	E 0700 D	N21 E02	7803		1-	3	0612	.60	.66		145	EH
	15	1058	E 1105 D	N20 E76	7809		1-	2 C	1203	.40				D
	15	1200	1207	N25 E90	7809		1-			.48				T
	15	1355	1402	N21 W02	7803		1-	C					18	
	15	1355	1402	N21 W02	7803		1-	C						
	15	1355	1402	N21 W02	7803		1-	C						
	15	1355	1402	N21 W02	7803		1-	C						
	15	1355	1402	N21 W02	7803		1-	C						
	15	1355	1402	N21 W02	7803		1-	C						

# SOLAR FLARES

MAY 1965

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IN- POR- TANCE	OBS. COND.	MEASUREMENTS				REMARKS	
		START	END	MAX PHASE	APPROX.					TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH He		MAX. INT
					LAT.	MER. DIST.									
LOCK	MAY 15	1754	1815	1805	N26	E90	7809	1-	C	1805	.30	1.50	20	HJ	
	15	1900	1955	1917	N26	E90	7809	1	C	1917	.60	3.00	20	HJ	
LOCK	16	0103	0129	0111	N25	E90	7812	1	C	0111	.60	3.00	20	HJ	
CAPS	16	0600	0735		N26	E90	7812	2	2	0615	2.00			HIJK	
CATA	16	0630	1200	D 0900	N25	E90	7812	2	2	0900	1.62	9.21	178	J	
CAPS	16	0738	0942		N26	E90	7812	2	3	0805	.90			HIJK	
KANZ	16	0755	0930	D	N24	E89	7812	1+	1	0810	1.17	6.44		A	
ARCE	16	0810	0820	D	N26	E90	7812	10	2	0900	.69	3.92			
ARCE	16	0830	0915	D	N26	E90	7812	45	2	1130	1.00			HIJK	
CAPS	16	1042	1245		N26	E88	7812	123	3	1219	1.00			FK	
MCMA	16	1217	1515		N26	E90	7812	178	2	1258	.20			DK	
HUAN	16	1243	1301		N25	E90	7812	1-	C						
HUAN	16			1247											
HUAN	16			1258											
CAPS	16	1255	1402		N26	E86	7812	67	3	1338	.80	16.00		EI	
WEND	16	1314	1336	D	N23	E88	7812	22	2+					CH	
KANZ	16	1316	1342	D	N24	E88	7812	26	D	1358	.34			DK	
HUAN	16	1329	1400		N25	E90	7812	1-	C						
HUAN	16			1339											
HUAN	16			1353											
HUAN	16			1358											
HUAN	16	1427	1506		N24	E90	7812	1-	P	1435	.20			DK	
HUAN	16	1513	1529	1518	N24	E90	7812	1-	C	1518	.20			D	
CAPS	16	1515	1538		N26	E86	7812	23	D		.90			EHI	
MCMA	16	1925	1933	D	N26	E88	7812	1-	2	1928	.20			D	
MCMA	16	1954	2000	D	N25	E88	7812	1-	2	2000	.10			D	
HUAN	16	1957	2006	2001	N24	E90	7812	1-	C	2000	.25			D	
MCMA	16	2032	2057	D	N25	E88	7812	1-	2	2032	.20			D	
HUAN	16	2034	2045	D	N24	E90	7812	1-	P	2037	.25			D	
LOCK	16	2037	2112	2050	N24	E90	7812	35	1-	2050	.70	3.50	20	J	
HALE	16	2214	2240	D	N23	E90	7812	1-	3	2228	.90			K	
HALE	16		2228												
LOCK	16	2215	2340	2225	N24	E90	7812	85	1	2225	.70	3.50	20	HJ	
LOCK	16	2303	2338	2314	N24	E90	7812	35	1	2314	.90	4.50	20	HJ	
MITK	16	2312	2315		N25	E85	7812	4	D					B	
HALE	17	0009	0028	D	N24	E90	7812	19	D	0018	1.00	5.00	20	H	
LOCK	17	0030	0119	0039	N24	E90	7812	49	1	0102	1.00				
LOCK	17			0102											
HALE	17	0032	0058	0035	N24	E90	7812	26	D	0035	1.70			H	
MITK	17	0043	0053		N26	E88	7812	10	D						
HALE	17	0059	0105	D	N24	E90	7812	6	D	0104	1.70			E	
MITK	17	0103	0117	0103	N24	E88	7812	14	D	0108	1.54			E	
MITK	17	0124	0143	0127	N26	E85	7812	19	1	0131	1.54		4.74	107	
MITK	17	0152	0210	0152	N26	E85	7812	18	V	0152	1.23		3.16	96	
MITK	17	0226	0240	0229	N24	E88	7812	1	V	0229	.26		2.23	107	
MITK	17	0240	0321	0249	N26	E85	7812	41	V	0250	1.23		2.63	96	
MITK	17	0324	0422	0350	N26	E85	7812	58	1	0350	2.01		3.89	120	
MITK	17	0340	0402	D	N25	E80	7812	22	D		1.30		4.36	D	
KODA	17	0405	0418		N26	E50	7809	19	1-						
MITK	17	0433	0452	0444	N26	E85	7812	19	C						
MITK	17	0518	0545	0521	N26	E82	7812	27	1						



## SOLAR FLARES

MAY 1965

OBSERVATORY	DATE MAY 1965	OBSERVED TIME		LOCATION		DURATION MINUTES	IM POR- TANCE	OBS COND	TIME		MEASUREMENTS		MAX WIDTH Ha	MAX INT	REMARKS
		START	END	APPROX LAT	APPROX MER DIST	MONTH PLAGE REGION			U T		MEAS AREA Sq Deg	CORR AREA Sq Deg			
MITK	17 0603	0619		N26 E82		7812	16	1	0636		.38	.60	1.30	155	E
CATA	17 0630	0650		S25 E47		7810		1	0638		.28	.90		182	CEG
ONDR	17 0637 E	0648		S22 E48		7810		1	0646						D
CATA	17 0635	0655		N24 E80		7812		1							D
MITK	17 0636	0648		N26 E83		7812		1							D
MITK	17 0653	0713		N26 E76		7812		1							D
KANZ	17 0755 E	0820		N23 E80		7812	25 D	1+							
ARCE	17 0810 E	0828	D	N26 E79		7812	18 D	1	0810		1.31	4.19			
KAND	17 0923	1000		N26 E75		7812	37	2							
KAND	17 0948	0957		N27 E90		7812		1			.20			201	D
KAND	17 1001	1008		N25 E80		7812		1	1005						
CAPS	17 1008	1039		N26 E75		7812	37	2							
KAND	17 1002	1039		N26 E75		7812	70	2							
KAND	17 1045	1155		N26 E75		7812		1							D
KANZ	17 1049	1052	D	N23 E80		7812		1							
KAND	17 1105	1110		N24 E68		7809		1							
KAND	17 1112	1119		N28 E90		7812		1							
KAND	17 1200	1215		N26 E75		7812	12	2							
KAND	17 1216	1228		N26 E75		7812		1			.26			20	
SACP	17 1302	1313		N26 E81		7812		1	1327		.45				E
HUAN	17 1323	1334		N23 E73		7812		1	1345		.25				D
HUAN	17 1344	1349		N23 E72		7812		1	1356		.20				D
HUAN	17 1354	1359		N23 E72		7812		1	1414		.20				D
HUAN	17 1406 E	1418	D	N23 E72		7812		1	1441		1.40	2.40		189	CE
CAPS	17 1430 E	1452	D	N26 E50		7809	22 D	1	1436		.30	.50			E
HUAN	17 1431	1440		N25 E48		7809		1			.43	.87			
SACP	17 1435	1443		N25 E69		7812		1	1438		.20			18	
HUAN	17 1436	1442		N22 E70		7812		1	1449		1.10	3.20		205	CE
CAPS	17 1441 E	1458	D	N25 E78		7812	17 D	1	1448		.20				E
HUAN	17 1445	1451		N23 E69		7812		1			.34	.68		19	
SACP	17 1445	1452		N25 E68		7812		1			.61	.74		23	
SACP	17 1858	1903		N21 E43		7809		1	1901		1.00	1.20			H
HALE	17 1859	1903		N21 E43		7809		1	1902		.50	.50		20	JL
LOCK	17 1859	1907		N21 E40		7809		1	1902		.20	.30			D
HUAN	17 1901 E	1903		N22 E45		7809		1	1902		.20				D
HUAN	17 1901	1905	D	N26 E76		7812		1	2032		.20	.40		19	
HALE	17 2027	2036		N23 E62		7812		1	2032		.17	.17			D
SACP	17 2321	2333		N20 W19		7813		1							
MITK	17 2348	0006		N27 E65		7812		1							
MITK	18 0159	0213		N23 E42		7809		1							D
MITK	18 0314	0340		N25 E66		7812		1	0326		.50	.95			D
MANI	18 0322 E	0340		N24 E69		7812		2							D
MITK	18 0459	0530		N26 E41		7809	31	1							E
MITK	18 0539	0558		N27 E38		7809		1							D
MITK	18 0546	0612		N25 E65		7812	26	1							E
MANI	18 0625	0658		N25 E68		7812		1	0635		1.00	1.90			
MITK	18 0627	0700		N26 E65		7812	33	1							
WEND	18 0630 E	0652	D	N23 E62		7812	22 D	1+							
CAPS	18 0637 E	0653		N25 E64		7812	16 D	1	0643		.80	6.00		182	CEH
CATA	18 0658	0650		N24 E65		7812		3	0645		.16	2.10		155	DH
BUCA	18 0648 E	0700	D	N26 E64		7812		1				1.60			

# SOLAR FLARES

MAY 1965

OBSERVATORY	DATE	OBSERVED TIME		LOCATION			DURA- TION — MINUTES	IM POR- TANCE	OBS COND	MEASUREMENTS			REMARKS
		START	END	APPROX. LAT.	MER. DIST	MCNATH PLAGE REGION				MEAS AREA Sq Deg	CORR AREA Sq Deg	MAX WIDTH Ha	
KAND	18 MAY 1965	0821	0836	N21 W45	7803	1-1	1-	D					
KAND	18 MAY 1965	0822	0834	N18 W23	7813	1-1	1-	D					
KAND	18 MAY 1965	0824	0858 D	N25 E63	7812	24	1+	3					
CATA	18 MAY 1965	0826	0850	N27 E64	7812		1-	D					
BUCA	18 MAY 1965	0832	0850 D	N26 E64	7812		1-						
KAND	18 MAY 1965	0836	0926	N28 E67	7812		1-						
CAPS	18 MAY 1965	0837	0907	N20 W23	7813		1-						
CATA	18 MAY 1965	0838	0858	N20 W23	7813		1-						
KAND	18 MAY 1965	0838	0904	N18 W23	7813	26	1+	3					
BUCA	18 MAY 1965	0839	0848 D	N20 W20	7813		1-						
HERS	18 MAY 1965	0840	0850	N20 W20	7813		1-						
KAND	18 MAY 1965	0840	0905 D	N20 W22	7813	25 D	1-						
BUCA	18 MAY 1965	0836	0850 D	N21 W40	7803		1-						
CATA	18 MAY 1965	0840	0849 D	N22 W40	7803		1-						
KAND	18 MAY 1965	0842	0951	N21 W41	7803	18	1-						
KAND	18 MAY 1965	0843	0901	N21 W45	7803		1-						
CAPS	18 MAY 1965	0843	0907	N23 W41	7803		1-						
KAND	18 MAY 1965	0846	0902 D	N26 E61	7812		1-						
CAPS	18 MAY 1965	0902	0926	N27 E60	7812		1-						
CAPS	18 MAY 1965	0943	1030 D	N20 W23	7813		1-						
CAPS	18 MAY 1965	0959	1019 D	N22 W41	7803		1-						
MCMA	18 MAY 1965	1222	1245 D	N22 E30	7809		1-						
CAPS	18 MAY 1965	1224	1236	N22 E32	7809		1-						
MCMA	18 MAY 1965	1234	1238	N27 E65	7812		1-						
KAND	18 MAY 1965	1415	1455	N19 E31	7809		1-						
HUAN	18 MAY 1965	1445	1457	N23 E58	7812		1-						
KAND	18 MAY 1965	1447	1503	N25 W60	7803		1-						
KAND	18 MAY 1965	1526	1550	N19 E29	7809	24	1-						
KAND	18 MAY 1965	1542	1459	N25 W57	7803		1-						
SACP	18 MAY 1965	1625	1645	N21 E28	7809		1-						
HUAN	18 MAY 1965	1626	1630 D	N20 E28	7809		1-						
MCMA	18 MAY 1965	1627	1645	N22 E28	7809		1-						
MCMA	18 MAY 1965	1721	1730	N27 E63	7812		1-						
SACP	18 MAY 1965	1737	1748 D	N19 E11	7809		1-						
MCMA	18 MAY 1965	1748	1755	N27 E63	7812		1-						
MCMA	18 MAY 1965	1828	1835	N22 E27	7809		1-						
MCMA	18 MAY 1965	1844	1915	N22 E27	7809		1-						
MCMA	18 MAY 1965	1849	1902	N19 E24	7809		1-						
LOCK	18 MAY 1965	1850	1917 U	N20 E27	7809		1-						
SACP	18 MAY 1965	1850	1917 U	N18 E26	7809		1-						
HALE	18 MAY 1965	1852	1901	N18 E26	7809		1-						
LOCK	18 MAY 1965	1854	1911	N20 E28	7809		1-						
HUAN	18 MAY 1965	1915	1923	N25 E29	7809		1-						
MCMA	18 MAY 1965	2000	2015	N25 E29	7809		1-						
MCMA	18 MAY 1965	2107	2120	N25 E29	7809		1-						
MCMA	18 MAY 1965	2326	2351 D	N19 W32	7813		1-						
SACP	18 MAY 1965	2334	2355	N20 W34	7813		1-						
MANI	18 MAY 1965	2334	2348	N24 E53	7812		1-						
MANI	19 MAY 1965	0731	0740	N26 E50	7812		1-						
BUCA	19 MAY 1965	0731	0742 D	N24 E50	7812		1-						
CATA	19 MAY 1965	0735	0755	N24 E50	7812		1-						
BUCA	19 MAY 1965	1036	1044 D	N24 E24	7809		1-						

## SOLAR FLARES

MAY 1965

OBSERVATORY	DATE	OBSERVED TIME		LOCATION			IM- POR- TANCE	OBS COND.	MEASUREMENTS		MAX INT °	REMARKS
		START	END	APPROX LAT	MER DIST	MCMTHT PLACE REGION			MEAS AREA Sq Deg	CORR. AREA Sq Deg		
MCMA	19 1128	1133	1129	N21 E17	7809	1- 7809	1- 7809	2 C	.20	.20		E
MCMA	19 1140	1149	1141	N23 E17	7809	1- 7809	1- 7809	2 C	.20	.20		D
SACP	19 1220	1237	1222	N20 E18	7809	1- 7809	1- 7809	1- 7809	.36	.37	18	
MCMA	19 1222	1229	1223	N21 E17	7809	1- 7809	1- 7809	2 C	.20	.20		E
MCMA	19 1319	1335	1429	N19 W42	7813	1- 7813	1- 7813	2 C	.30	.40		S
MCMA	19 1423	1455		N26 E22	7809	1- 7809	1- 7809	1- 7809	1.09	1.17	20	
HUAN	19 1424	1443	D	N25 E22	7809	1- 7809	1- 7809	3 P	.65	.78		E
CAPS	19 1424	1446		N24 E25	7809	1- 7809	1- 7809	3	1.20	1.50	165	CF
MCMA	19 1424	1521	1427	N27 E23	7809	1- 7809	1- 7809	2 C	.50	.60		S
SACP	19 1508	1521	1511	N26 E46	7812	1- 7812	1- 7812	1- 7812	.56	.74	20	
HUAN	19 1509	1514	1511	N24 E46	7812	1- 7812	1- 7812	1- 7812	.30	.50		E
MCMA	19 1530	1552	1511	N27 E47	7813	1- 7813	1- 7813	2 C	.50	.70		EH
CAPS	19 1532	1542	1534	N20 W41	7813	1- 7813	1- 7813	3	.40	.60	190	
MCMA	19 1600	1612	1602	N19 W44	7809	1- 7809	1- 7809	1- 7809	.30	.40		S
MCMA	19 1600	1612	1602	N27 E23	7809	1- 7809	1- 7809	2 C	.40	.50		S
SACP	19 1723	1733	1725	N26 E22	7809	1- 7809	1- 7809	1- 7809	.61	.65	18	
SACP	19 1801	1820	1803	N20 E15	7809	1- 7809	1- 7809	1- 7809	.26	.26	18	
HALE	19 1820	1902	1827	N17 W42	7813	1- 7813	1- 7813	3 P	1.60	1.90		
HALE	19 1821	1845	1826	N24 E43	7812	1- 7812	1- 7812	3 C	2.00	2.60		F
LOCK	19 1821	1850	D	N25 E41	7812	1- 7812	1- 7812	1- 7812	.80	.80	20	H
MCMA	19 1821	1904	1824	N27 E45	7812	1- 7812	1- 7812	2 C	1.30	2.10		S
HUAN	19 1821	1908	1826	N23 E46	7812	1- 7812	1- 7812	1- 7812	1.35	2.24		E
SACP	19 1848	1856	1852	N25 E44	7812	1- 7812	1- 7812	1- 7812	1.40	1.76	21	
MCMA	19 1902	1957	1923	N27 E42	7813	1- 7813	1- 7813	3 C	.60	.80		SHK
HALE	19 1918	1952	1924	N18 W42	7813	1- 7813	1- 7813	2 C	.50	.70		
HALE	19 1948	2010	1953	N17 W41	7809	1- 7809	1- 7809	3 C	1.00	1.20		
MCMA	19 1951	2002	1953	N20 E12	7809	1- 7809	1- 7809	1- 7809	.40	.40		
SACP	19 1951	2009	1956	N20 E20	7809	1- 7809	1- 7809	1- 7809	.20	.20	18	D
LOCK	19 1952	2007	2002	N20 E13	7809	1- 7809	1- 7809	2 C	.43	.44	20	
OTTA	19 2002	2009	2002	N21 E13	7809	1- 7809	1- 7809	1- 7809	.30	.30		
HALE	19 2007	2020	2009	N20 E12	7809	1- 7809	1- 7809	1- 7809	.36	.36		E
OTTA	19 2105	2124	D	N22 E12	7809	1- 7809	1- 7809	2 C	.40	.40		H
SACP	19 2106	2132	2114	N20 E13	7809	1- 7809	1- 7809	1- 7809	.53	.53		HE
MCMA	19 2108	2120	2115	N20 E13	7809	1- 7809	1- 7809	1- 7809	.61	.62	18	
HALE	19 2109	2125	2115	N20 E20	7809	1- 7809	1- 7809	2 C	.50	.50		E
HALE	20 0001	0009	0006	N20 E13	7809	1- 7809	1- 7809	3 C	1.20	1.20		
MITK	20 0012	0012	D	N18 W44	7813	1- 7813	1- 7813	2 C	2.00	2.40		E
HALE	20 0009	0030	0014	N18 W45	7813	1- 7813	1- 7813	3 C	2.50	3.00		
MANI	20 0005	0040	0000	N21 W34	7813	1- 7813	1- 7813	3 C	1.30	1.56		
HALE	20 0138	0150	D	N24 E16	7809	1- 7809	1- 7809	3 P	.80	.80		
BUCA	20 0556	0639	D	N19 W48	7813	1- 7813	1- 7813	1- 7813	3.60	3.60		
MANI	20 0600	0626	D	N21 W46	7813	1- 7813	1- 7813	2	1.00	1.30		F
CAPS	20 0615	0636	D	N21 W48	7813	1- 7813	1- 7813	2	1.60	2.50	194	
BUCA	20 0652	0701	D	N19 W49	7813	1- 7813	1- 7813	1- 7813	.90	.90		J
WROC	20 0832	0840	D	N22 E09	7809	1- 7809	1- 7809	1- 7809				J
WROC	20 0838	0840	D	N26 E32	7812	1- 7812	1- 7812	1- 7812				
KAND	20 0853	0857	1055	N23 E10	7809	1- 7809	1- 7809	1- 7809	.15	.20		
OTTA	20 1051	1107	1215	N17 W50	7813	1- 7813	1- 7813	1- 7813	.24	.28		HK
OTTA	20 1206	1425	1215	N26 E35	7812	1- 7812	1- 7812	1- 7812				

# SOLAR FLARES

MAY 1965

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURATION MINUTES	IM- POR- TANCE	OBS. COND.	TIME U T	MEASUREMENTS		MAX WIDTH H <sub>0</sub>	MAX INT H <sub>0</sub>	REMARKS
		START	END	APPROX. LAT	APPROX. LONG PLAGE REGION					MEAS AREA Sq Deg	CORR AREA Sq Deg			
KAND	20	1210	1227	N24	E24 7812	17	1-	G	1248	.30	.41			D
KAND	20	1236	1255	N24	E24 7812		1-	G		.26	.30		19	D
HUAN	20	1300	1309	N25	E35 7812		1-	C	1325	.20	.27			D
SACP	20	1314	1335	N24	E36 7812		1-	C	1406	.65	.66		18	E
HUAN	20	1405	1413	N26	E09 7809		1-	C		.28	.28			E
MCMA	20	1405	1418 D	N25	E09 7809		1-	C	1406	.12	.16			E
SACP	20	1405	1421	N24	E49 7819		1-	C	1417	1.90	2.17			
OTTA	20	1407	1423	N27	E30 7812	21	1	C	1446	.99	1.13		22	
OTTA	20	1440	1501	N27	E30 7812		1-	C		.80	1.10			S
SACP	20	1441	1452	N28	E32 7812		1-	C	1444	.50	.67			E
MCMA	20	1441	1455	N26	E30 7812		1-	C	1445	.12	.16			
OTTA	20	1502	1516	N27	E33 7812		1-	C	1508	.12	.13			
OTTA	20	1535	1553	N27	E33 7812		1-	C	1537	.24	.25			
OTTA	20	1548	1557	N28	E09 7809		1-	C	1550	.20	.23			
OTTA	20	1602	1643	N27	E32 7812		1-	C	1604	.20	.27			D
HUAN	20	1603	1609	N25	E35 7812		1-	C	1605	.04	.04			
OTTA	20	1647	1733	N22	E02 7809		1-	C	1649	.20	.30			D
MCMA	20	1700	1711	N27	E35 7812		1-	C	1705	.18	.20			D
OTTA	20	1702	1712	N27	E32 7812		1-	C	1706	.20	.27			D
OTTA	20	1702	1712	N25	E35 7812		1-	C	1705	.20	.27			D
HUAN	20	1748	1801	N25	E35 7812		1-	C	1754	.20	.27			D
LOCK	20	1909	1918	N22	E00 7809		1-	C	1912	.40	.40		20	
HALE	20	1909	1921	N23	W01 7809		1-	P	1911	.10	.10			D
MCMA	20	1910	1916	N23	E00 7809		1-	C	1911	.17	.17		19	
SACP	20	1910	1917	N22	E00 7809		1-	C		.30	.43		17	
SACP	20	2033	2100	N19	W55 7813		1-	C	2042	.20	.20			D
MCMA	20	2040	2057	N23	E03 7809		1-	C	2127	.20	.30			D
MCMA	20	2125	2130	N27	E33 7812		1-	C	2218	.60	.70			S
MCMA	20	2215	2228	N23	E03 7809		1-	C	2231	.20	.40			D
MCMA	20	2229	2247	N19	W60 7813		1-	C		.41	.42		18	
SACP	20	2241	2258	N26	E03 7809		1-	C	2247	.50	.60			S
MCMA	20	2245	2256	N25	E05 7809		1-	C		1.62	2.47		21	
SACP	20	2320	2357	N19	W59 7813	37 D	1	C		1.00	1.40			E
MITK	20	2321	2326	N18	W60 7813	5 D	1	C		.52	.59		18	
MANI	20	2338	0040	N20	W59 7813		1-	C	2335	.33	.33			
SACP	20	2330	2340	N27	E30 7812		1-	C		1.05	1.59		19	
MANI	20	2333	2355	N25	E04 7809		1-	C		.52	.58		18	
SACP	21	0011	0045	N18	W59 7813		1-	C		.33	.46			J
SACP	21	0100	0110	N05	E39 7816		1-	C	0112					H
SACP	21	0105	0120	N20	W58 7813		1-	C						J
WROC	21	0736	0840	N19	W63 7813	64 D	1	D				2.60		
KAND	21	0807	0952	N19	W64 7813	105 D	1	D						H
WROC	21	0930	0935	N25	E22 7812		1-	C						J
WROC	21	0930	0935	N23	W02 7809	5 D	1	C	1137	1.10	1.20			S
WROC	21	1106	1149	N24	W06 7809		1-	C	1124	.09	.09			H
OTTA	21	1108	1214	N22	E17 7812	10 D	1-	C		1.43	1.44			J
WROC	21	1113	1123	N23	W02 7809		1-	C	1137					E
OTTA	21	1124	1147	N23	W05 7809		1-	C						

COMMERCE - STANDARDS - BOULDER

## SOLAR FLARES

MAY 1965

OBSERVATORY	DATE	OBSERVED TIME		LOCATION		DURATION MINUTES	IM- PORTANCE	OBS COND	TIME U T	MEASUREMENTS			REMARKS
		START	END	APPROX LAT.	MER DIST	MEMPH PLACE REGION				MEAS AREA Sq Deg	CORR AREA Sq Deg	MAX WIDTH H <sub>0</sub>	
OTTA	21	1146	1156	N25 E18	7812		1-	C	1148	.18	.19		E
OTTA	21	1156	1251	N25 W05	7809		1-	C	1221	.60	.61		F
OTTA	21	1213	1235	N08 W32	7816		1-	C	1214	.23	.24		
OTTA	21	1358	1403	N19 W65	7813		1-	2 C	1359	.18	.31		
OTTA	21	1441	1450	N26 E20	7812		1-	1 C	1450	.12	.13		D
MCMA	21	1442	1444	N25 E22	7812		1-	2 C	1444	.10	.10		EK
HUAN	21	1444	1449	N21 W66	7813		1-	C	1449	.40	.40		D
MCMA	21	1457	1502	N18 W68	7813		1-	2 C	1458	.20	.60		
OTTA	21	1457	1505	N17 W67	7813		1-	1 C	1458	.27	.50		
SACP	21	1458	1503	N18 W65	7813		1-	C	1531	.61	1.06	20	
OTTA	21	1526	1531	N26 E10	7812		1-	C	1531	.12	.12		
MCMA	21	1531	1536	N25 E12	7812		1-	2 C	1533	.20	.20		D
MCMA	21	1526	1540	N20 W66	7813		1-	2 C	1530	.20	.60		D
MCMA	21	1528	1536	N21 W65	7813		1-	C	1531	.20	.18		D
OTTA	21	1529	1536	N19 W65	7813		1-	2 C	1531	.18	.31		
OTTA	21	1554	1607	N23 W08	7809		1-	2 C	1557	.42	.43		
HUAN	21	1714	1730	N18 W68	7813		1-	P	1726	.20	1.06		D
OTTA	21	1722	1736	N18 W68	7813		1-	2 C	1722	.60	.60		F
OTTA	21	1814	1835	N18 W69	7813		1-	2 C	1825	.36	.67		F
MCMA	21	1849	1905	N25 W08	7809		1-	2 C	1855	.40	.40		S
HALE	21	1849	1906	N24 W10	7809		1-	2 C	1856	.70	.70		
HALE	21	1852	1908	N18 W70	7813		1-	2 C	1900	.70	1.40		
OTTA	21	2026	2029	N24 W10	7809		1-	2 C	2027	.18	.18		
MCMA	21	2040	2051	N18 W70	7813		1-	2 C	2042	.20	.60		D
HALE	21	2047	2059	N17 W72	7813		1-	2 P	2047	.70	1.50		
MCMA	21	2120	2158	N21 W10	7809		1-	2 C	2125	.20	.20		D
HALE	21	2126	2129	N23 W11	7809		1-	2 C	2127	.40	.40		
HALE	21	2128	2155	N17 W71	7813		1-	2 C	2136	.60	1.20		
HALE	21	2244	2319	N18 W74	7813		1-	2 P	2252	.60	1.40		
HALE	21	2342	2347	N23 W11	7809		1-	3 C	2343	.10	.10		
HALE	21	2347	0025	N23 W09	7809		1-	3 C	0002	.50	.50		
SACP	22	0000	0017	N24 W10	7809		1-	C		.52	.53	19	
MANI	22	0002	0010	N28 W06	7809		1-	1 C	0004	.25	.25		
MITK	22	0003	0016	N23 W10	7809		13 D	1 V	0003	.82	.93	1.85	D
HALE	22	0052	0104	N17 W75	7813		1-	3 C	0054	.40	1.00		
SACP	22	0053	0101	N16 W72	7813		1-	C		.35	.72	18	
SACP	22	0115	0131	N19 W70	7813		1-	P	0123	.30	.60	19	
HALE	22	0117	0147	N18 W74	7813		1-	2 C	0153	.40	1.00		
HALE	22	0151	0204	N18 W75	7813		1	3 C	0208	1.00	2.40		
HALE	22	0205	0222	N18 W75	7813		1-	3 C	0234	.30	.70		F
HALE	22	0232	0237	N18 W73	7813		1-	3 C	0234	.20	.50		
HALE	22	0250	0259	N18 W75	7813		1-	3 C	0253	.30	.70		
HALE	22	0354	0400	N18 W80	7813		1-	1 C	0356	.20	.50		
WROC	22	0655	0720	N18 W70	7813		1	1 C			2.80	2.80	J
ONDR	22	0727	0748	N24 E10	7812		1	1	0730		1.70		CEN HFJ
WROC	22	0744	0814	N27 E12	7812		1	1					
WEND	22	0802	0814	N20 W73	7813		1	1	0810	.58		174	DH
CATA	22	0805	0830	N21 W79	7813		1	1					JL
WROC	22	0928	1136	N18 W70	7813		1	1				2.80	
WEND	22	1124	1136	N20 W75	7813		1	1					



# SOLAR FLARES

MAY 1965

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS COND.	MEASUREMENTS		MAX WIDTH H <sub>g</sub>	MAX INT %	REMARKS
		START	END	APPROX. LAT	APPROX. MER. DIST	MCMA THETE FLARE REGION			TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.		
SACP	22	1309	1327	N18	W78	7813	1-	C	1321	.35	.90	20	D
HUAN	22	1311	1337	N19	W85	7813	1-	P	1317	.30			D
MCMA	22	1313	1329	N18	W85	7813	1-	3	1317	.50		160	CJ
CAPS	22	1313 E	1334	N17	W79	7813	1-	3	1321	.25	.80		E
HUAN	22	1425	1437	N19	W85	7813	1-	P	1434	.30			D
SACP	22	1633 E	1640	N19	W85	7813	1-	P	1635	.25		19	H
OTTA	22	1633	1704	N23	W01	7812	1-	C	.41	.61			H
OTTA	22	1634	1702	N23	W00	7812	1-	C	1644	.18			H
OTTA	22	1654	1703	N23	W22	7809	1-	C	1658	.12			H
MCMA	22	1739	1817	N24	W22	7809	1-	C	1753	.15			D
MCMA	22	1752	1800	N25	W20	7809	1-	C	1755	.10	.10		H
MCMA	22	1916	1940	N17	W80	7813	1-	C	1929	.60			S
MCMA	22	1925	1933	N18	W88	7813	1-	C	1929	.50	2.10	22	F
MCMA	22	1938	2008	N26	W20	7809	1-	C	1944	2.72	2.88		E
SACP	22	1940	1953	N25	W19	7809	1-	C	1947	2.20	2.20		E
HALE	22	1942	2009	N25	W20	7809	1-	C	1947	1.00	1.22		E
HALE	22	1942	2016	N17	W90	7813	1-	C	1947	.70			E
HUAN	22	1943	1957	N27	W20	7809	1-	C	1947	.50			E
HUAN	22	1959	2009	N19	W90	7813	1-	C	2002	.30			
MCMA	22	2000	2007	N18	W90	7813	1-	C	2002	.30			
HALE	22	2054	2127	N17	W90	7813	1-	C	2111	.60			
HALE	22	2147	2200	N17	W90	7813	1-	C	2154	.40			
MCMA	22	2244	2249	N18	W90	7813	1-	P	2246	.20			
HALE	22	2326	2331	N17	W90	7813	1-	C	2328	.30			
HALE	22	2337	0002	N17	W90	7813	1-	C	2344	.40			
HALE	23	0159	0207	N17	W90	7813	1-	C	0202	.30			
HALE	23	0223	0244	N24	W24	7809	1-	C	0226	.20	.20		
HALE	23	0229	0328	N24	W22	7809	1-	C	0233	.30	.30		
HALE	23	0314	0325	N18	W90	7813	1-	C	0322	.10			H
HALE	23	0351	0355	N17	W90	7813	1-	C	0352	.10			
CATA	23	0625 E	0645	N21	W90	7813	1-	C	0636	.14	.80	132	D
OTTA	23	1248 E	1353	N22	W10	7812	1-	C	1307	.18	.18		H
OTTA	23	1550	1617	N22	W12	7812	1-	C	1552	1.64	1.64		E
CAPS	23	1556	1606	N27	E00	7812	1-	3	1600	1.00	1.00		H
OTTA	23	1600	1623	N21	W15	7812	1-	C	1603	.21	.21		
OTTA	23	1620	1625	N22	W15	7812	1-	C	1618	.26	.26	18	
SACP	23	1707	1720	N17	W90	7813	1-	P	1714	.20			
HALE	23	1744	1804	N21	W41	7809	1-	C	1749	.20	.20		
HALE	23	1806	1819	N21	W41	7809	1-	C	1809	.70	.80		
HALE	23	1810	1812	N16	W90	7813	1-	C	1811	.20			H
HALE	23	1901	1920	N21	W39	7809	1-	C	1908	.40	.40	10	HJ
LOCK	23	1904	1915	N21	W41	7809	1-	C	1908	.20			HJ
HALE	23	1927	1935	N22	W42	7809	1-	C	1930	.40	.50		H
HALE	23	2033	2037	N15	W90	7813	1-	C	2034	.10			
LOCK	23	2346	0012	N24	W32	7809	1-	C	2351	.50	.50	20	
OTTA	24	1644	1656	N30	E90	7827	1-	C	1648	.30			
OTTA	24	1635	1653	N25	W46	7809	1-	C	1648	.36	.47		
OTTA	24	1650	1737	N26	W43	7809	1-	C	1703	1.08	1.35		E

## SOLAR FLARES

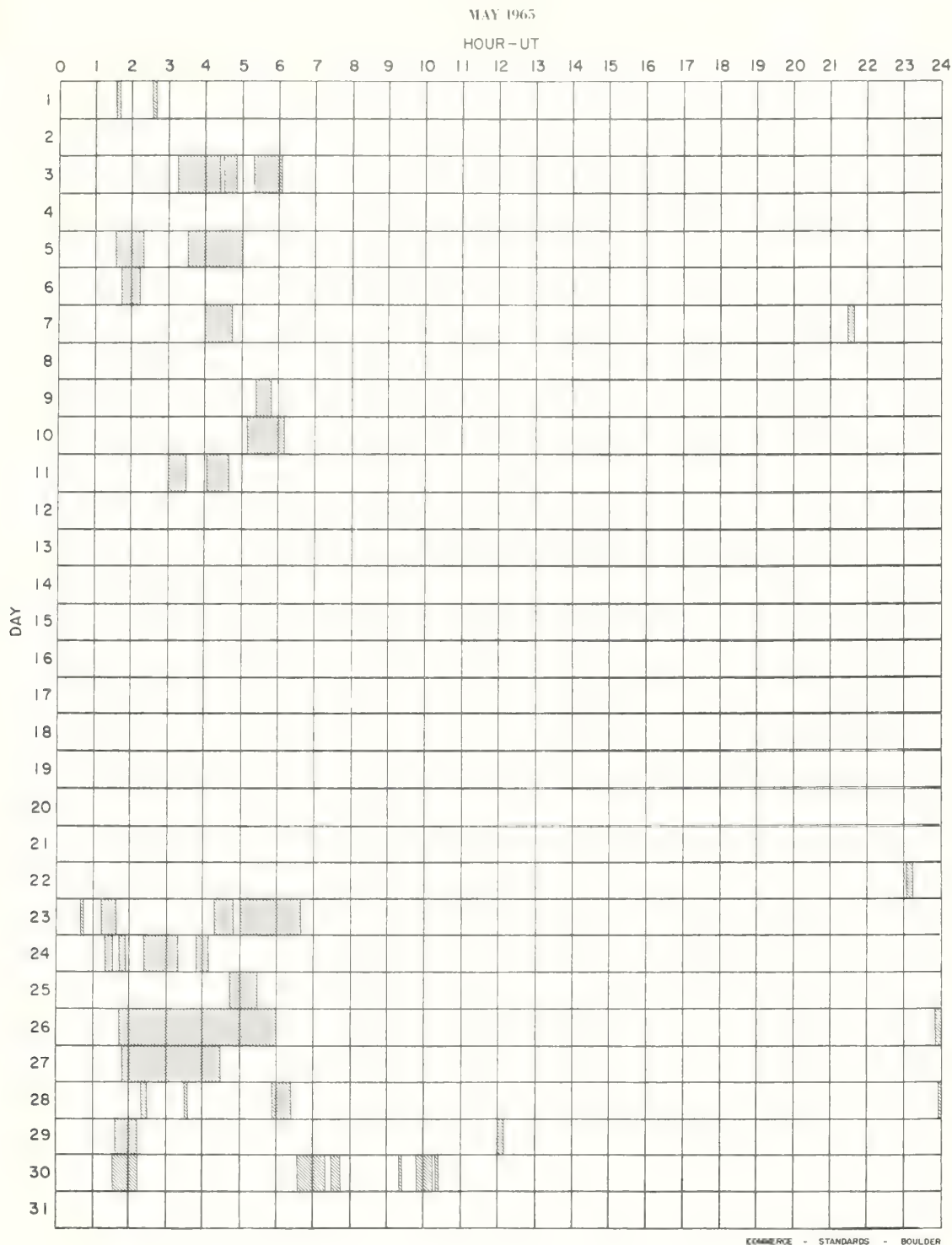
MAY 1965

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		IM POB TANCE	OBS COND	TIME U T	MEASUREMENTS		MAX. WIDTH H <sub>g</sub>	MAX. INT	REMARKS
		START	END	APPROX. LAT.	MEWATH PLACE REGION				MEAS. AREA Sq Deg	CORR. AREA Sq Deg			
— SACP	24	1700	1738 U	N26 W43	7809	1-	C	1709	1.04	1.31		19	S
— MCWA	24	1702	1733	N27 W45	7809	1-	1 P		.80	1.30			E
— HUAN	24	1704 E	1723 D	N20 W48	7809	1-	3 C	1818	.10	.10			
— HALE	24	1816	1822	N20 W48	7809	1-	3 C		.30	.40			
— HALE	24	1853	1905	N23 W48	7809	1-	3 C	1856	.30	.40			F
— HALE	24	1910	1921	N23 W48	7809	1-	1 C	1915	.80	.90			F
— HALE	24	2150	2219	N24 W27	7812	1-	2 P	2202	.40	.50			E
— MCWA	24	2220 E	2240 D	N23 W28	7812	1-		2223	.20	.20			
— HALE	25	0338	0346	N24 W28	7812	1-	3 C	0339	1.00	1.40			F
— HALE	25	0419	0446 D	N27 W51	7809	1-	2 P	0434	.80	1.23		17	
— SACP	25	1349	1359	N19 W65	7809	1-			.15	.26			
— OTTA	25	1352	1358	N18 W77	7809	1-	C	1355	.10	.20			
— HALE	25	1631	1640	N20 W69	7809	1-	2 C	1634	.40	.60			
— HALE	25	1645	1651	N22 W60	7809	1-	3 C	1648	.43	.79		20	H
— SACP	25	1647	1655	N19 W67	7809	1-	1 C		.24	.44			H
— OTTA	25	1647	1718	N19 W78	7809	1-	3 C	1651	.20	.40			
— HALE	25	1744	1755	N18 W70	7809	1-		1752	.20	.40			
— HALE	25	1802	1816	N18 W70	7809	1-	3 C	1805	.20	.40		10	F
— LOCK	25	1921	1929	N17 W49	7812	1-		1924	.60	1.20			
— HALE	25	2005	2014	N20 W72	7809	1-	3 C	2007	.60	1.34		20	
— LOCK	25	2005	2015	N19 W69	7809	1-		2008	.60	1.20		19	
— SACP	25	2006	2010	N20 W69	7809	1-	C		.60	1.20		20	E
— LOCK	25	2209	2218	N19 W69	7809	1-	2 C	2212	1.10	2.20		20	H
— MCWA	25	2210	2216	N20 W72	7809	1-	C	2212	.20	.20		10	
— LOCK	25	2240	2251	N19 W69	7809	1-		2245	.60	.60			
— LOCK	25	2310	2322	N32 E37	7824	1-		2315	.20	.20			
— LOCK	26	0021	0051	N27 E35	7824	1-	C	0026	.60	.60		20	L
— SACP	26	0025	0036	N28 W37	7812	1-	C		.87	1.04		19	
— ARCE	26	0855 E	—	N19 W85	7809	1-	2 C	0855	.23	.94			
— OTTA	26	1235	1245	N24 W72	7809	1-	2 C	1241	.30	.60			D
— HUAN	26	1238 E	1244 D	N26 W70	7809	1-		1240	.20	.50		18	
— SACP	26	1239	1244	N24 W68	7809	1-	C		.26	.35		17	
— SACP	26	1343	1349	N21 W79	7809	1-			.13	.35			
— CAPS	28	0916 E	1038 D	N25 W90	7812	2	2 C	0940	1.00	.40		204	EJ
— LOCK	28	2034	2120	N29 E28	7827	1-		2046	.40	.40		20	L
— LOCK	29	1840	1910	N38 E90	7838	1-	C	1845	.30	1.50		20	H
— LOCK	29												

COMMERCE - STANDARDS - BOULDER

# INTERVALS OF NO FLARE PATROL OBSERVATIONS PROVISIONAL

IIIk



Observatories included:

Arcetri	Haleakala	Kandilli	Manila	Ondrejov	Wendelstein
Bucharest	Herstmonceux	Kanzelhöhe	McMath-Hulbert	Ottawa	Wroclaw
Capri-S (Swedish)	Huancayo	Kodaikanal	Meudon	Sacramento Peak	
Catania	Istanbul	Lockheed	Mitaka	Tortosa	

# SOLAR FLARES

FEBRUARY 1965

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IN- POR- TANCE	OBS COND.	MEASUREMENTS			MAX INT °	REMARKS
		START	END	APPROX. LAT.	APPROX. MER. DIST.				TIME U T	MEAS AREA Sq. Deg	CORR AREA Sq. Deg	MAX WIDTH H <sub>g</sub>	
CULG	01	0308	0314	N06	E41	7661	1-	C	0310	1.00	1.30		GC
CULG	01	0459	0508	N36	W33	7656	1-	C	0504	.20	.32		
ARCE	02	0000	0030	NO FLARE			1-	1	0950	.49	.55		
SACP	02	0920	1000	PATROL			1-	C					
SACP	02	1510	1521	N07	E15	7661	1-	C		.33	.32	17	H
OTTA	02	1613	1622	N07	E13	7661	1-	C	1616	.67	.67		DH
MCMA	02	1614	1622	N08	E12	7661	1-	2	1616	.50	.50		
CLMX	02	1614	1623	N07	E13	7661	1-	C	1616	1.20	1.20		
SACP	02	1620	1629	N07	E13	7661	1-	C		.29	.28	17	
SACP	02	1656	1719	N08	E13	7661	1-	C		.75	.74	18	
OTTA	02	1700	1715	N08	E13	7661	1-	C	1711	.22	.22		H
CLMX	02	1707	1715	N08	E13	7661	1-	C	1710	.90	1.00		
SACP	02	1722	1753	N08	E13	7661	1-	C		.29	.28	16	
OTTA	02	1724	1754	N08	E13	7661	1-	C	1728	.33	.33		H
CLMX	02	1725	1738	N08	E13	7661	1-	C	1729	.60	.60		
SACP	02	1733	1800	N06	E15	7661	1-	C		.33	.32	19	
CLMX	02	1738	1802	N05	E16	7661	1-	C	1743	.90	1.00		
OTTA	02	1741	1805	N05	E15	7661	1-	C	1744	.28	.28		E
SACP	02	1853	1917	N07	E11	7661	1-	C		1.08	1.06	19	
CLMX	02	1854	1917	N07	E12	7661	1-	C	1905	1.10	1.10		
SACP	02	1916	1939	N08	E12	7661	1-	C		.16	.16	10	
CLMX	02	1919	1939	N08	E12	7661	1-	C	1929	.40	.40		
LOCK	02	1919	1945	N10	E10	7661	1-	C	1930	.20	.20	20	H
MCMA	02	1924	1929	N08	E10	7661	1-	C	1929	.20	.20		DH
CLMX	02	2043	2101	N07	E11	7661	1-	1	2053	1.00	1.00		
LOCK	02	2043	2109	N09	E09	7661	1-	C	2054	.60	.60	20	H
HALE	02	2048	2050	N06	E08	7661	1-	4					
SACP	02	2050	2057	N07	E10	7661	1-	C		1.04	1.02	18	
LOCK	02	2131	2201	N08	E09	7661	1-	C	2140	.50	.50	20	H
CULG	02	2200	2209	N08	E10	7661	1-	C	2203	.40	.42		
CULG	02	2206	2240	N09	E12	7661	1-	C	2211	1.47	1.47		FKH
CULG	02	2247	2251	N08	E12	7661	1-	C	2249	.60	.63		H
CULG	02	2305	2318	N08	E09	7661	1-	P	2313	2.00	2.10		
LOCK	02	2306	2326	N06	E08	7661	1-	C	2313	.50	.50	20	J
HALE	02	2307	2322	N06	E08	7661	1-	3	2314	.70	.70		
MITK	02	2311	2318	N07	E09	7661	1-	C					
CULG	02	2343	2356	N09	E11	7661	1-	C	2345	.60	.63		H
CULG	03	0022	0041	N07	E09	7661	1-	C	0030	1.00	1.05		H
LOCK	03	0025	0034	N08	E08	7661	1-	C	0029	.70	.70	20	
MITK	03	0027	0031	N07	E08	7661	1-	C					
LOCK	03	0041	0053	N09	E09	7661	1-	C	0046	.50	.50	10	
CULG	03	0043	0052	N09	E10	7661	1-	C	0046	1.20	1.26		H
CULG	03	0058	0119	N10	E10	7661	1-	C	0105	.60	.63		H
CULG	03	0115	0152	N08	E08	7661	1-	C	0121	.80	.84		HK
CULG	03	0159	0209	N10	E10	7661	1-	C	0204	.20	.21		H
CULG	03	0200	0213	N07	E08	7661	1-	C	0204	.80	.84		
CULG	03	0204	0220	N09	E08	7661	1-	C	0211	.60	.63		
CULG	03	0223	0237	N09	E10	7661	1-	C	0226	2.00	2.10		
CULG	03	0234	0254	N08	E08	7661	1-	C	0242	1.40	1.47		H
CULG	03	0306	0321	N07	E11	7661	1-	C	0310	.40	.42		

# SOLAR FLARES

FEBRUARY 1965

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				REMARKS		
		START	END	LAT.	APPROX. MER DIST				M-MATH FLARE REGION	TIME U T	MEAS AREA Sq Deg.	CORR AREA Sq Deg.		MAX WIDTH H <sub>g</sub>	MAX INT °
CULG	FEB 1965														
	03	0314	0324	0317	N08 E08	7661	1-	C	0317	1.00	1.05				H
	03	0338	0352	0341	N08 E08	7661	1-	C	0341	.80	.84				
	03	0355	0415	NO FLARE	PATROL		1-	1 C	1720	.30	.30				LS
MCMA	03	1715	1732	1720	N08 E03	7661									
ARCE	04	0855 E	0925 D		N08 W05	7661	1-	2	0905	1.70	1.76				
SACP	05	1613	1629	1621	N06 W24	7661	1-	C		.99	1.01				
SACP	05	1750	2000 U	1808	N07 W25	7661	130 U	2		1.51	1.93				
MCMA	05	1750	2006 D	1810	N08 W25	7661	136 D	2	1810	7.50	8.50				FS
CLMX	05	1750	2024	1810	N08 W26	7661	154	2	1810	8.20	8.20				
CULG	06	0127	0135	0131	N07 E49	7668	1-	C	0131	.40	.64				G
ARCE	06	0942 E	1000 D		N10 W33	7661	1-	4	0942	.56	.70				
	06	1720	1930	NO FLARE	PATROL										
	06	1950	2100	NO FLARE	PATROL										
	06	2150	2210	NO FLARE	PATROL										
CULG	07	0320	0330	0324	N12 W46	7661	1-	C	0324	.20	.30				
MITK	07	0330	0347	0336	N11 W42	7661	1-	C		.60	.80				
CULG	07	0332	0350	0339	N11 W42	7661	1-	C	0339	.20	.30				
CULG	07	0422	0433	0426	N05 W48	7661	1-	C	0426	.20	.30				
CAPS	07	1155 E	1200 D		N09 W43	7661	5 D	1	1157						C
LOCK	07	1220	1245	NO FLARE	PATROL										
HUAN	07	1819	1848	1826	N09 W51	7661	29	1	1826	3.60	4.50				FL
HUAN	07	1822	1838 D		N09 W53	7661	16 D	1	1826	1.64	2.74				EFL
HUAN	07			1827											
HUAN	07			1826											
HUAN	07			1826											
HALE	07	2128	2144	2131	N16 W53	7661	1-	4	2131	.60	.80				
MITK	07	2333	2346	2338	N22 W52	7660	1-	C							
KIEV	08	1151	1210	1159	N13 W49	7665	1-	C	1159	1.00	1.50				D
	08	1545	1600	NO FLARE	PATROL		1-	C		.30	1.50				
LOCK	08	1831	1903	1845	N30 E90	7667	1-	1 P	1845	.30	1.50				K
MCMA	08	1833	2000 D	1846	N31 E90	7667	1-	C	1846	.50	.80				L
LOCK	08	2029	2117	2038	N05 W65	7661	1-	C	2038						
	09	0120	0200	NO FLARE	PATROL										
	09	0640	0800	NO FLARE	PATROL										
	09	1600	1605	NO FLARE	PATROL										
	09	1905	2105	NO FLARE	PATROL										
	09	2115	2235	NO FLARE	PATROL										
	09	2255	2327	2305	N25 E38	7674	32	2	2305	3.60	5.40				FL
CULG	09														
	10	0300	0320	NO FLARE	PATROL										
ARCE	10	0925 E	1013 D		N20 W90	7660	48 D	1	1002	.72	4.09				H
CAPE	10	0950	1022		N20 W90	7660	32	1	1004	.90					
CATA	10	1020	1045 D	1022	N18 W90	7660	25 D	1	1022	.50					
CAPE	10	1121	1128		N21 W90	7660	1-	C	1125						
CAPE	10	1605	1650	NO FLARE	PATROL										



# SOLAR FLARES

FEBRUARY 1965

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS COND	MEASUREMENTS				REMARKS	
		START	END	APPROX LAT.	MER. DIST				MCNATH PLAGE REGION	TIME U T	MEAS AREA Sq Deg	CORR. AREA Sq Deg		MAX WIDTH H <sub>0</sub>
CULG LOCK LOCK	FEB 11 1965	0524	0529 D	N29 E51	7677	1-	1-	P	0526	.40	.80	10		
	11 1913	1937	1924	N29 E41	7677	1-	1-	C	1924	.20	.30	10		
	11 2110	2127	2116	N29 E41	7677	1-	1-	C	2116	.20	.30			
CULG CULG	12 0555	0611	0602	N22 E39	7677	1-	1-	C	0602	.60	.84			C
	12 0557	0613	0601	N26 E43	7677	1-	1-	C	0601	.80	1.36			
OTTA CULG	14 0630	0730	NO FLARE	PATROL		1-	1-	C	1610	.15	.16			H
	14 1606	1637	1610	S41 W19	7687	1-	1-	C	2205	.20	.26			
KAND	15 0735	0745	NO FLARE	PATROL		1-								
	15 1333	1338		S22 W85										
CULG CULG LOCK LOCK LOCK	16 0453	0502	0455	N25 E56	7677	1-	1-	C	0455	.40	.90			G
	16 0540	0548	0544	N28 W13	7677	1-	1-	C	0544	.60	.75			GH
	16 1700	1716	1707	N32 E01	7677	1-	1-	C	1707	.10	.10	10		H
CULG	16 2006	2019	2010	S04 E45	7693	1-	1-	C	2010	.20	.20	10		H
	16 2244	2257	2249	S01 E27	7693	1-	1-	C	2249	.10	.10	10		H
OTTA LOCK SACP CULG	17 1200	1205	NO FLARE	PATROL		1-	1-	C	1845	.11	.20			
	17 1255	1300	NO FLARE	PATROL		1-	1-	C	2323	.40	.70	10		
	17 2316	2336	2323	N23 W60	7674	1-	1-	C	2323	.40	1.20			G
CULG	17 2317	2334	2323	N26 W68	7674	1-	1-	C	2323	.46	.88	16		
	17 2319	2332	2328	N25 W64	7674	1-	1-	C	2358	.40	.46			G
	17 2340	2400	2358	N13 E22		1-	1-	P						G
CULG KAND KAND	18 0137	0200	0148	N28 E22	7696	1-	1-	C	0148	.20	.26			
	18 1016	1025	1022	N31 E90	7696	1-	1-							
	18 1026	1032	1028	N26 E90	7696	1-	1-							
CULG SACP LOCK LOCK	18 1116 E	1121	1540	N02 W50	7694	1-	1-	C	1540	.60	1.00	17		
	18 1535	1547	1540	N04 E67	7694	1-	1-	C	1815	.29	.50	10		H
	18 1535	1547	1540	N05 E66	7694	1-	1-	C	2054	.20	.40	10		H
CULG LOCK LOCK	18 1759	1837	1815	S31 W13	7695	1-	1-	C	2150	.30	.56	20		CGL
	18 2044	2102	2054	N43 W30	7677	1-	1-	C	2152	.40	.40	20		H
	18 2142	2201	2150	N21 W34	7677	1-	1-	C	2223	1.00	1.80	17		CG
CULG CULG SACP	18 2147	2205	2152	N20 W32	7694	1-	1-	C		.38	.55			
	18 2220	2229	2223	N00 E58	7694	1-	1-	C						
	18 2220	2232	2224	N02 E58	7694	1-	1-	C						
MCMA	19 1635	1650	1638	S23 W13	7695	1-	1-	1 C	1638	.20	.20			DH
	20 0210	0215	NO FLARE	PATROL		1-	1-	C	0226	.40	.52	10		CGH
	20 2218	2236	2226	N32 E15		1-	1-	C	2225	.20	.20	18		
CULG LOCK SACP	20 2218	2238	2225	N30 E13	7697	1-	1-	C	2301	.60	1.80	10		G
	20 2256	2307	2259	N27 E64	7697	1-	1-	C	2302	.40	.70			
	20 2256	2309	2301	N26 E64	7697	1-	1-	C						
CULG LOCK	20 2256	2310	2302	N26 E59	7697	1-	1-	C						
	23 0653 E	0808	0713	S05 E90	7704	75 D	2							

# SOLAR FLARES

FEBRUARY 1965

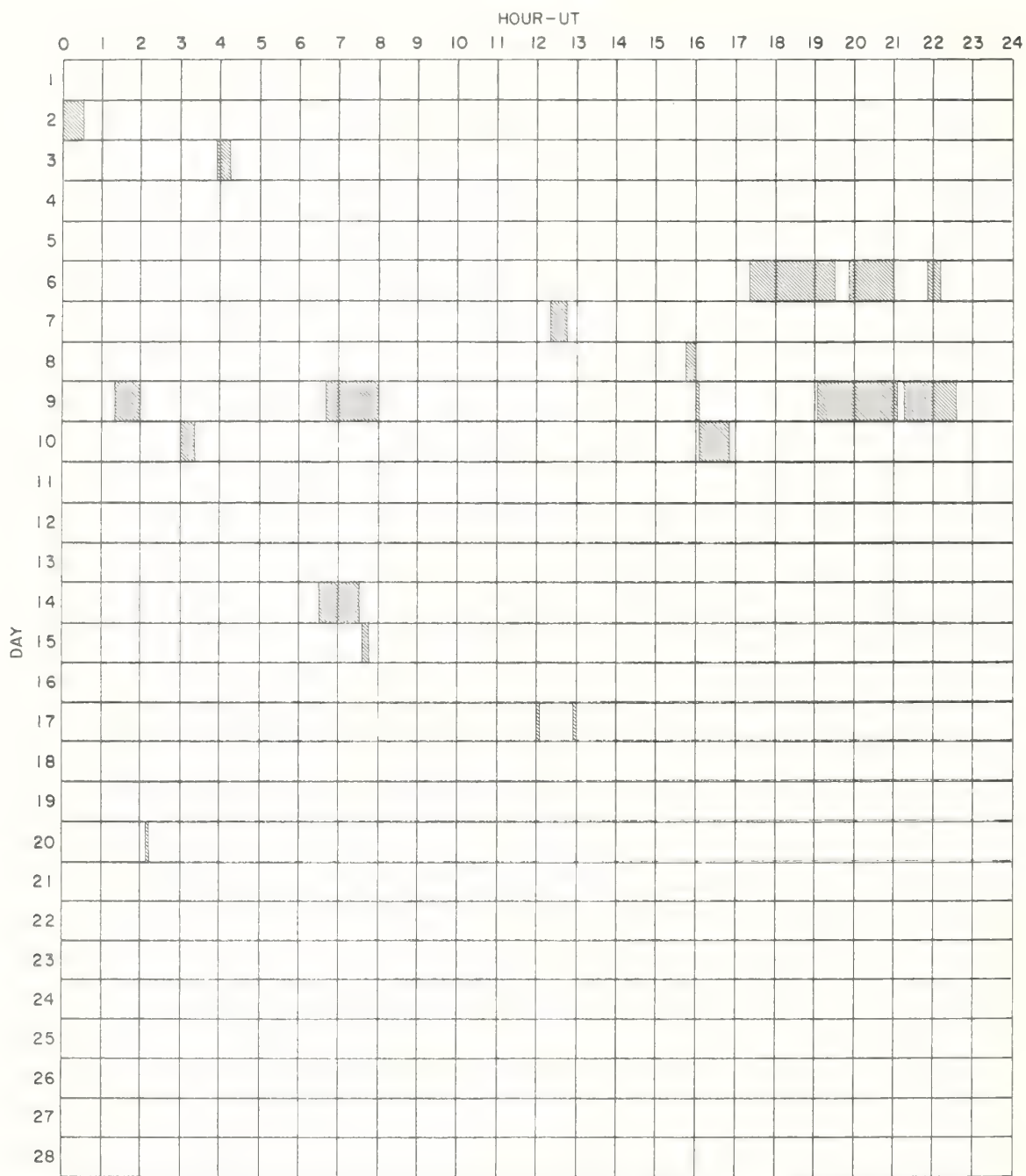
OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM POR- TANCE	OBS COND.	MEASUREMENTS				REMARKS
		START	END	APPROX. LAT.	APPROX. MER. DIST.				MEAS AREA Sq Deg	CORR AREA Sq Deg	MAX WIDTH H <sub>0</sub>	MAX INT. H <sub>0</sub>	
LOCK	FEB 23 1965	2010	2030	N32 W90			1-	C	•30	1•50		20	
SIBE	24	0420 E	0429	S04 E79	7704	9 E	1	C	•66	3•40		180	EL
LOCK	24	2026	2041	S03 E61	7704		1-	C	•30	•50		10	
SACP	26	2123	2142	N16 E54	7707		1-	C	•12	•18		17	H
HALE	26	2336	2355	N05 E35			1-	3	•20	•20			
CULG	27	0419	0436	S05 E32	7704		1-	C	•60	•69			L
CULG	27	0502	0518	S06 E32	7704		1-	C	•20	•23			L
CULG	27	0551	0607	S16 E35	7709		1-	C	•80	1•00			EG
MITK	27	0553	0604	S15 E35	7709		1-	C					
CATA	27	0845	0915 D	N28 E74	7710		1-	C	•16	•42		155	G
ISTA	27	0855 E	0904 D	N35 E21		9 D							
N12H	27	0925 E	0935 D	S15 E44	7709	10 E	1	1	1•82	2•79	1•30		CDH
HTPR	27	0932	0952	N23 E45	7707	20	1		1•60	2•50			
KANZ	27	0942 E	0946 D	N16 E49	7707	4 D	1					150	E
CAPS	27	0942 E	1020 D	N22 E42	7707	38 D	1	1	2•40	3•50			E
ARCE	27	1015 E	1020 D	N24 E47	7707		1-	2	•55	1•06			
ARCE	27	1015 E	1020 D	N36 E72	7710		1-	2	•26	•80			
ARCE	27	1015 E	1020 D	S01 E30	7704		1-	2	•20	•23			
MCMA	27	1319 E	1417 D	N32 E62	7710		1-	2	•40	•40			S
CULG	27	2234	2300	S04 E21	7704		1-	C	•20	•21			
HUAN	27	2238 E	2238 D	S03 E22	7704		1-	P	•10	•10			D
CULG	28	0425	0549	N23 E37	7707		1-	C	3•00	4•50			FG
LOCK	28	2010	2025	N30 E44	7710		1-	C	•40	•50		10	
LOCK	28	2042	2104	N21 E22	7707		1-	C	•50	•50		20	
MCMA	28	2044	2057	N23 E29	7707		1-	3 C	•40	•50			ES

COMMERCE - STANDARD - BULLDOZ

These flare reports are addenda to the February 1965 Flares published in CRPL-F 247 Part B for March 1965.

## INTERVALS OF NO FLARE PATROL OBSERVATIONS

FEBRUARY 1965



COMMERCE - STANDARDS - BOULDER

## Observatories Included:

Abastumani	Catania	Ikomasan	Locarno	Ondrejov	Voroshilov
Arcetri	Climax	Istanbul	Lockheed	Ottawa	Wroclaw
Athens	Culgoora	Izmiran	Lvov	Sacramento Peak	Zurich
Bucharest	Haleakala	Kandilli	Manila	Siberie	
Capetown	Haute-Provence	Kanzelhöhe	McMath-Hulbert	Tachkent	
Capri-F (German)	Herstmonceux	Kiev-Ko	Mitaka	Tortosa	
Capri-S (Swedish)	Huancayo	Kodaikanal	Nizamiah	Uccle	

# IONOSPHERIC EFFECTS OF SOLAR FLARES

IIIq

SHORT WAVE RADIO FADEOUTS      SUDDEN PHASE ANOMALIES  
 SUDDEN COSMIC NOISE ABSORPTION      SUDDEN ENHANCEMENTS OF SIGNAL  
 SUDDEN ENHANCEMENTS OF ATMOSPHERICS      SUDDEN FREQUENCY DEVIATIONS  
 SOLAR NOISE BURSTS AT 18 Mc/s

APRIL 1965

APR 1965	UNIVERSAL TIME			TYPE SWF IMP	IMPORTANCE						BUR	WIDE SPREAD INDEX	STATIONS	KNOWN FLARE
	START	END	MAX		ABS	SCNA	SEA	SPA	SES	SFD				
02	1958	2001									1	5	HA BO	
02	2103	2106									1-	5	BO HA RO	
02	2203	2209									1	5	BO HA	
02	2250	2253									1-	5	BO HA	
02	2305	2307									1-	5	HA BO	
05	2035	2038									1	5	HA BO	
06	1930	1933									1	5	BO HA	
09	0150	0152									1-	5	MA HA	
11	1450	1540	1508	S 2								5	PU DA HU JU MC	1453
11	1455	1535	1507						1			5	A-1	
11	1456	1522	1509		7	1						5	PU	
11	1458	1608	1552				1					5	PU A-2 A-5	
15	2353	0010	2358	G 1-								3	MA	2351
15	2353	0018	2358					18				3	MA	
17	2136	2143									1	5	RO HA	2132
21	1418	1421									1-	5	BO RO	
21	1430	1433									1-	5	RO BO	
21	1451	1454									1-	5	BO RO	
21	1457	1459									1-	5	BO RO	
21	1623	1627									1	5	RO BO	
21	2129	2134									1	5	BO HA	

COMMERCE - STANDARDS - BOULDER

## RIOMETER EVENTS

APRIL 1965

FROBISHER BAY

30 Mc/s

APR. 1965	START UT	END UT	MAX. UT	MAX. ABSORP. db, (tenths)	NO. OF PEAKS	APR. 1965	START UT	END UT	MAX. UT	MAX. ABSORP. db, (tenths)	NO. OF PEAKS
9	0320	0400	0329	3	1	20	0910	1608	1107	7	2
13	0142	0326	0153	22	4	25	1132	1325	1139	16	4
14	2358	0008	2400	4	1	26	0950	1510	1035	16	2
17	1300	1920	1618	14	2	27	0920	1924	1425	12	1
18	0332	1100	0704	9	5	28	0925	1312	1019	19	5
19	0216	0428	0224	6	2	30	0940	*	1000	22	1
19	1004	0119	2326	32	2						

COMMERCE - STANDARDS - BOULDER

\* Uncertain due to equipment failure



**SOLAR RADIO EMISSION  
OUTSTANDING OCCURRENCES**

IVa

MAY 1965

ARO-OTTAWA  
DRAO-PENTICTON

2800 Mc/s  
2700 Mc/s

MAY 1965	U R A N E	DESCRIPTIVE  TYPE	START  UT	DURATION  HRS MIN	MEAN  FLUX	MAXIMUM		REMARKS
						TIME	FLUX	
2	3	Simple 3A	0045	45	1.0	Indet.	2.0	
	1	Simple 1F	0048	01	4.5	0048.5	7.0	
2	3	Simple 3A	1205	1 37	1.3	1230	2.5	
	1	Simple 1	1210	04	0.5	1212	1.0	
8	3	Simple 3	1634	2 31	0.5	1810	1.0	
13	3	Simple 3	2312	18	0.5	2330	1.0	
15	1	Simple 1	1354	03.5	0.5	1355	1.0	
15	3	Simple 3	1440	1 25	0.7	1515	1.5	
15	1	Simple 1	1921	05	1.5	1924	3.0	
	4	Post B.I.	1926	30	0.7		1.5	
16	3	Simple 3	1440	1 55	0.8	Indet.	1.5	
16	3	Simple 3F	1905	2 07	1.0	1945	2.0	
17	3	Simple 3	1425	35	1.0	1440	1.8	
17	3	Simple 3	1505	12	0.6	1508	1.2	
17	1	Simple 1	1836	02	0.3	1837	0.6	
17	1	Simple 1	2039	03	1.5	2040	3.0	
17	3	Simple 3	2214	26	0.6	2222	1.2	
17	3	Simple 3	2350	>1 50	-	0050	2.6	
18	3	Simple 3	1551	2 14	0.5	1630	1.0	
18	3	Simple 3A	1842	55	0.8	1906	1.6	
	1	Simple 1	1851	01.5	0.5	1851.5	1.0	
	1	Simple 1	1858	03	0.5	1858.5	1.0	
	1	Simple 1	1903	03	2.0	1904	4.0	
18	3	Simple 3F	1957	2 33	0.7	2119	1.4	
18	3	Simple 3	2325	2 15	0.7	0030	1.4	
19	3	Simple 3A	1405	1 35	1.5	1428	3.0	
	1	Simple 1	1424	02	2.0	1425	4.0	
19	1	Simple 1	1600	2 00	0.7	1600.5	1.3	
19	3	Simple 3F	1815	1 30	2.5	1824	5.0	
19	3	Simple 3	2046	1 28	1.2	2114	2.0	
19	3	Simple 3A	2356	1 22	1.3	0008	2.2	
20	1	Simple 1	0002	02	1.1	0003	2.2	
20	1	Simple 1	0137	04.5	1.0	0138.3	2.0	
20	3	Simple 3	b1425	>1 17	1.2	1450	2.4	
20	3	Simple 3	1608	2 10	1.3	1710	2.0	
20	3	Simple 3A	2026	2 36	1.0	2045	2.0	
	1	Simple 1	2140	01	0.5	2140.5	1.0	
20	3	Simple 3A	2320.8	>2 20	-	2343	7.5	
	6	Complex	2320.8	03	7.0	2321	18.0	
	1	Simple 1	2339.5	02.5	1.4	2341	2.0	
	6	Complex	2344	02.5	2.5	2345	4.0	
21	3	Simple 3	1131	11	1.1	1134	2.2	
21	3	Simple 3	1840	40	0.3	1855	0.6	
21	3	Simple 3	2002	28	0.5	2015	1.0	
21	3	Simple 3	2330	2 05	1.2	0002	2.4	
22	3	Simple 3	1823	33	0.3	1829	0.6	
22	3	Simple 3A	1940	1 35	2.7	1950	5.4	
	1	Simple 1	1942	04	1.5	1943	3.0	
	1	Simple 1	2026	03	3.2	1927.5	6.4	
23	3	Simple 3	1550	35	0.7	1552	1.4	
23	3	Simple 3F	2340	1 26	1.3	2353	2.6	
24	3	Simple 3F	1649	1 11	1.6	1705	3.2	
24	3	Simple 3	1818	1 10	0.3	Indet.	0.6	
24	3	Simple 3	2230	1 00	0.4	2300	0.8	
25	2	Simple 2F	2242	02	4.0	2202.8	10.0	

# SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES

MAY 1965

NBS BOULDER

108 Mc s

May 1965	TYPE	START UT	TIME OF MAXIMUM UT	DURATION MINUTES	INTENSITY
12	3	1311.7	1312.1	1.6	3
25	8	2241	2241.1	4	3

COMMERCE - STANDARDS - BOULDER

## NOMINAL TIMES OF OBSERVATION

MAY 1965

NBS BOULDER

108 Mc s

May 1965	HOURS OF OBSERVATION U.T.	HOURS OF INTERFERENCE U.T.	May 1965	HOURS OF OBSERVATION U.T.	HOURS OF INTERFERENCE U.T.
1	1205-0135		18	1147-0150	2152-2159;
2	1204-0136	1439-2200;	19	1147-2057;	2300-0151
3	1203-1358;	2307-0002		2138-0151	1858-2057;
	1417-0137	1443-1937;			2138-2257;
4	1202-0138	2304-0137	20	1146-1619;	2305-0151
5	1201-0139	1202-1825;	21	1726-0152	2205-0152
6	1159-0140	2255-0138	22	1145-0153	2300-0153
7	1158-0141	1201-1929;	23	1144-0154	2007-0154
8	1157-0142	2302-0139	24	1143-0154	1500-0154
9	1156-0143	1330-1552;	25	1143-0155	1428-2205;
10	1155-0144	2300-0140			2245-0155
		2315-0141	26	1142-1753;	1630-1753;
		2228-0142		1900-0156	1900-0007
		1745-0143	27	1141-0157	2019-2250;
		1228-1823;	28	1141-0158	2340-0157
		2300-0144	29	1140-0158	
11	1154-0145	1200-1500;	30	1139-1636;	
12	1153-0146	2137-0145		1800-0159	
13	1152-0146	2300-0146	31	1139-1552;	1722-0159
14	1151-0147	1844-0147		1722-0159	
15	1150-0148	2300-0147			
16	1149-0149	2300-0148			
17	1148-0149	2253-0149			

COMMERCE - STANDARDS - BOULDER

NOTE: Equipment operated erratically May 30 and 31. Most of the interference due to atmospherics.

# SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

IVc

MAY 1965

**High Altitude Observatory  
Boulder**

**7.6-41 Mc/s**

Date May 1965	Bursts			Frequency Range (Mc/s)	Date May 1965	Bursts			Frequency Range (Mc/s)
	Type	Time (U.T.)	Inten- sity			Type	Time (U.T.)	Inten- sity	
1 May	III	1427-1431:30	2	8-41	18 May	III	1554:45-1555	1-	29-34
	IV	1427-1448	1-	21-41		III	1601:15-1601:45	1-	20-41
	III	1622-1623:15	1+	20-41		III	1612:45-1613	1	10-41
	III	1643-1643:30	1-	8-41		III	1613:15-1613:45	1	17-41
3	III	1623:15-1623:45	2	28-41		III	1630:45-1631	1	26-38
6	no observ.	2112-2254				III	1635-1635:30	1	19-38
7	no observ.	1300-1544				continuum	1704-1750	1-	21-41
	III	1353-1353:15	1-	27-41		III	1756:15-1756:45	1	22-31
	III	1403:45-1404:45	2	14-41		III	1806:30-1807	1-	22-41
	III	1553:30-1553:45	1-	18-41		III	1830-1830:15	1	21-30
	III	1719:30-1720	1-	22-41		III	1840-1840:30	1-	26-41
	III	1802:30-1802:45	1	21-41		III	1846-1846:15	1-	23-41
	III	1818:15-1818:30	1	11-41		III	1921-1921:15	1-	23-34
	III	1824:45-1825:15	1	24-41		III	1934-1934:15	1-	24-32
10	no observ.	2010-2258				III	1949-1949:15	1-	22-41
12	no observ.	1300-1349				III	2005:30-2005:45	1-	19-37
	III	2025-2025:15	1-	22-41		III	2006:15-2006:45	1-	17-40
15	III	0103-0103:30	1	22-38		III	2019-2019:15	1-	26-33
17	III	1154:45-1155	1-	17-41		III	2053:15-2053:40	1-	24-32
	III	1600-1600:15	1	26-41		III	2108:15-2108:30	1-	24-41
	III	1618:45-1619	1	23-37		III	2119:15-2119:45	2	19-41
	III	1638-1638:15	1	24-30		III	2131:45-2132:15	1+	21-41
	III	1800:45-1801	1-	28-35		III	2134-2134:15	1	21-41
	III	1809:45-1810	1	23-41		III	2210:30-2211	1+	18-41
	III	1815:30-1816:45	2	9-41		III	2258:15-2258:30	1	22-37
	III	1924:15-1924:30	1-	18-27		III	2336:15-2336:45	3	12-41
	III	2002-2002:15	1-	22-35		III	2336:45-2337:30	3	12-41
	III	2003-2003:15	1	24-41		III	2337:30-2337:45	1	12-41
	III	2145:30-2145:45	1	18-38		III	2338-2338:15	1	20-41
	III	2237-2237:15	1-	21-35		III	2355:45-2356	1-	26-35
	III	2335-2335:15	1	21-35		III	2356:45-2357	1-	26-35
	III	2354-2354:15	1-	27-38	19	III	0013:30-0013:45	1+	24-41
18	III	0008:45-0009:45	3	17-41		III	1129-1129:15	1	16-21
	III	0010:15-0010:45	1+	20-41		III	1130-1130:30	1	16-22
	III	0051-0052:45	2	16-41		III	1131:15-1131:45	1	16-22
	III	0056:45-0057	1-	22-41		III	1140:15-1143:15	2	12-41
	III	1157:15-1157:45	1+	17-35		III	1143:30-1143:45	1+	15-41
	III	1224:15-1224:30	1	17-41		III	1227:30-1227:45	1-	24-33
	III	1224:30-1224:45	1	17-41		III	1320:15-1320:45	1+	20-41
	III	1225-1225:15	1	25-41		III	1323-1323:15	1-	22-38
	III	1225:15-1225:30	1	25-41		III	1402-1402:15	1	25-41
	III	1226:30-1227	1-	25-41		III	1404:45-1405	1-	23-30
	III	1316:15-1316:30	1-	22-41		III	1406-1406:45	2	16-41
	III	1344-1344:15	1	22-41		III	1407:15-1410:15	2	16-41
	III	1402:15-1402:30	1	20-41		III	1411:15-1411:30	2	17-41
	III	1414:45-1415:15	1+	10-41		III	1457-1457:15	1-	25-32
	III	1421-1421:15	1	27-39		III	1502:15-1502:30	1-	21-34
	III	1441-1441:15	1	23-38		III	1515:45-1516:15	2	16-41
	III	1516-1516:15	1	21-41		III	1532-1532:30	2	16-41
	III	1519:15-1519:30	1	27-31		III	1537:30-1539:15	3	8-41

# SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

MAY 1965

High Altitude Observatory  
Boulder

7.6-41 Mc/s

Date May 1965	Bursts				Date May 1965	Bursts			
	Type	Time (U.T.)	Intensity	Frequency Range (Mc/s)		Type	Time (U.T.)	Intensity	Frequency Range (Mc/s)
19 May	III	1542:30-1543	1+	16-41	21 May	III	0027:30-0027:45	1-	29-41
	III	1544:45-1545	1+	20-31		III	0041-0041:15	1-	29-39
	III	1550-1550:15	1	21-41		III	1648:45-1649	1-	29-40
	III	1603:30-1603:45	1	29-39		III	1703:45-1704:15	1-	21-39
	III	1604:45-1605	1	25-41		III	1851-1851:15	1-	29-41
	III	1612-1614:30	1+	16-41		III	1853:45-1854	1-	22-41
	III	1635:30-1636:30	1-	22-35		III	1954:45-1955	1-	22-37
	III	1728:45-1729	1	24-41		III	2030-2030:15	1-	22-41
	III	1831:45-1832	1-	22-38		III	2045:30-2049:45	1	12-36
	III	1915:30-1915:45	1-	29-41		III	2053:45-2054	1-	23-39
	III	1918:15-1918:45	1	16-41	22	continuum	2107-2527	1-	23-41
	III	1920:30-1921	1-	17-41		continuum	1213-1835	1-	22-41
	III	1926-1926:45	2	14-41		III	1840:45-1850	2	16-34
	III	2008:45-2010:30	2	8-41		III	1852:45-1853:15	1	11-36
	III	2015:30-2015:45	1	24-35		III	1847-1848:15	2	21-41
	III	2050:15-2050:45	1	21-41	23	continuum	1849-a2000	1-	20-41
	III	2101:15-2101:30	1-	23-34		III	2210:45-2211:15	1	23-41
	III	2218-2218:30	1-	16-41		III	1248:30-1249	1-	24-41
	III	2219-2219:30	1+	16-41		III	1250:15-1250:45	1-	30-41
	III	2239:45-2240	1-	23-30		III	1252:15-1252:30	1-	26-41
	III	2304:15-2305:30	3	13-41		III	1308:30-1309	1	27-41
	III	2335-2335:15	1	27-41		III	1309:15-1309:30	1-	31-41
	III	2338:45-2338:15	2	13-41		III	1617:30-1619	2	28-41
	III	2341:45-2342	1-	35-41		III	1619-1619:30	1	26-41
	III	0002:30-0005	3	11-41		III	1654:15-1654:45	1-	22-41
	III	0005:15-0005:30	1	27-41		III	1717-1717:30	1	24-41
	III	0007:45-0012:15	1	23-41		III	1718:30-1719:45	2	25-41
	III	0014-0014:15	1-	34-41		III	1726:15-1727:30	1+	23-41
	III	0045-0045:30	1+	19-41		III	1728:15-1728:30	1-	26-41
	III	0046-0047:15	2	17-41		III	1729-1729:30	1	28-41
	III	0103-0103:15	1	29-41		III	1732-1732:15	1	28-41
	III	0116:15-0116:30	1-	27-38		III	1733:15-1733:30	1-	32-41
	III	1236:15-1236:30	1-	24-41		III	1743:30-1743:45	1-	32-41
	III	1305:45-1306	1	21-32		III	1747-1747:15	1-	30-41
	III	1317:15-1317:30	1-	31-38		III	1747:30-1749	2	26-41
	III	1321:30-1321:45	1	29-38		III	1749:15-1749:30	2	25-41
21	III	1329:30-1329:45	1-	26-41		III	1752:30-1753	1	28-41
	III	1412:30-1413	1-	28-41		III	1806:45-1809:45	3	16-41
	III	1421:15-1421:30	1	24-41		continuum	1806:45-1813:30	1-	31-41
	III	1631:15-1632	2	8-41		III	1927-1927:45	1	16-41
	III	1632:45-1633:15	1+	20-39		III	1928-1928:45	1	16-41
	III	1639:45-1640	1	27-37		III	1929-1929:15	1-	24-41
	III	1640:30-1641	1	19-41		III	1955:45-1956:30	1+	23-41
	III	1744-1744:15	1-	25-32		III	2021:30-2022	1-	27-32
	III	1747:15-1748:30	1	20-41		III	2026:30-2027	1-	26-33
	III	1857:30-1857:45	1	20-41	24	III	2034:30-2035	2	15-41
	III	2054:45-2055	1-	29-41		III	2044:45-2045:15	1	26-34
	III	0014:15-0014:30	1	23-41		III	2047:45-2048:15	1	25-37
	III	0015-0016:30	2	12-41		III	1623:15-1623:30	1-	24-38
	III	0018:30-0018:45	1-	25-41		III	1751:45-1752	1-	23-37

# SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

IVc

MAY 1965

High Altitude Observatory  
Boulder

7.6-41 Mc/s

Date May 1965	Bursts			Frequency Range (Mc/s)	Date May 1965	Bursts			Frequency Range (Mc/s)
	Type	Time (U.T.)	Inten- sity			Type	Time (U.T.)	Inten- sity	
24 May	III	1953:45-1954:15	1-	20-39	25 May	III	1827:15-1828	1+	19-41
	III	1954:30-1955	1-	22-39		III	1956:45-1957:45	1+	16-41
	III	2057:15-2057:45	1-	23-41		III	1957:45-1958:15	1	19-41
	III	2058:30-2059	1	16-41		III	2005:15-2005:30	1+	19-41
	III	2059-2059:30	1	16-41		III	2006-2006:30	1+	8-41
25	III	1130:15-1131	1+	16-41	26	III	2006:30-2011:15	3	8-41
	III	1131-1132:15	1+	16-41		III	2116:30-2117:45	1	13-41
	III	1132:15-1133:45	2	16-41		III	2120:30-2124	2	8-41
	III	1133:45-1134	1-	17-38		III	2200:30-2204	2	8-41
	III	1136:15-1136:45	1+	18-41		III	2208:30-2209	1+	20-41
	III	1140:15-1140:45	1	21-41		III	2209:30-2213:15	2	8-41
	III	1233:15-1233:45	1	23-41		III	2227:30-2228	1	20-41
	III	1234:15-1235	2	20-41		IV	2241-2252	1+	8-41
	III	1238:30-1239:15	2	16-41		III	2241:45-2244:30	3	8-41
	III	1244-1244:30	1-	27-38		II	2246:30-2250	1	28-41
	III	1248-1248:15	1-	28-39		II	2303-2310	2	27-41
	III	1339:15-1339:45	1+	20-41		III	1246:30-1247	1-	24-39
	III	1346:45-1347:15	1+	20-41		III	1348-1348:45	2	12-41
	III	1347:45-1348	1-	29-36		III	1430:45-1431:15	1	12-34
	III	1353-1353:30	1	20-37		III	1437:45-1438	1-	20-36
	III	1354:45-1355:15	1-	23-28		III	1444:15-1444:30	1-	30-37
	III	1355:15-1355:45	1-	23-41		III	1444:45-1445	1-	29-38
	III	1355:45-1356:15	1	21-41		III	1445:15-1448:15	2	16-38
	III	1409:15-1409:45	1	16-41		III	1452:15-1454:15	2	13-41
	III	1419:45-1420:15	1	20-41		no observ.	1900-2147		
	III	1427:15-1427:45	1	20-41	27	III	1403:15-1404	1-	22-36
	III	1444-1444:30	1-	23-32		continuum	1406:30-1412:30	3	11-41
	III	1451-1451:30	1+	12-37		III	0006:15-0007	1	20-41
	III	1503:45-1504:15	1-	23-41		III	0007:15-0008:15	1	22-41
	III	1512:30-1513	1-	27-39		III	0008:45-0009	1-	22-41
	III	1513:30-1515:15	3	11-41	30	III	0009:15-0009:30	1-	22-31
	III	1517-1517:30	1	16-41		III	1849:30-1854:15	3	8-41
	III	1639-1641	3	8-41		III	1259:45-1301:15	2	15-41
	III	1648:15-1648:30	1-	27-37					
	III	1649-1649:15	1	25-39					
	III	1652:15-1652:30	1	22-41					
	III	1724:45-1725	1	22-41					
	III	1736-1736:30	1	10-41					
	III	1751:30-1753	1+	14-41					
	III	1820:15-1821:30	2	8-41					

COMMERCE - STANDARDS - BOULDER

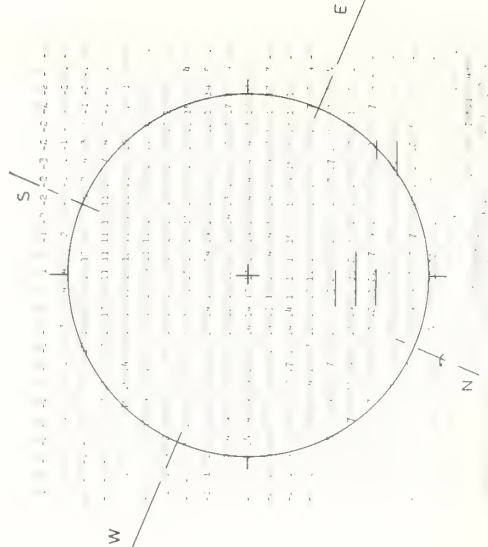
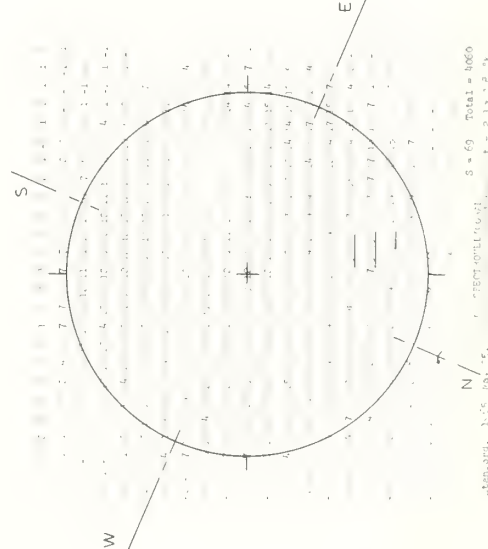
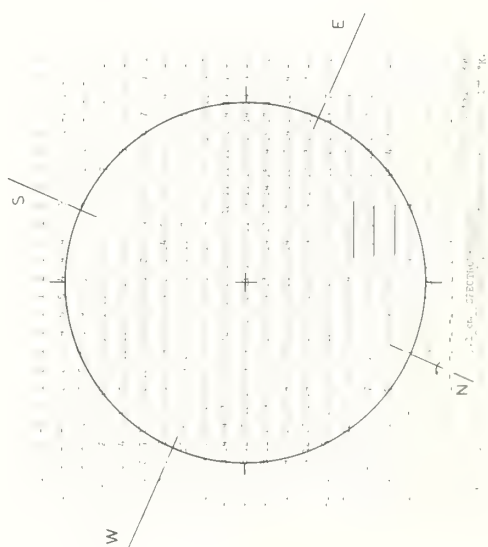
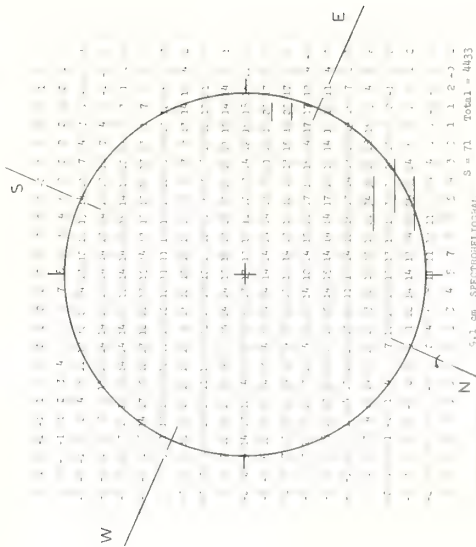
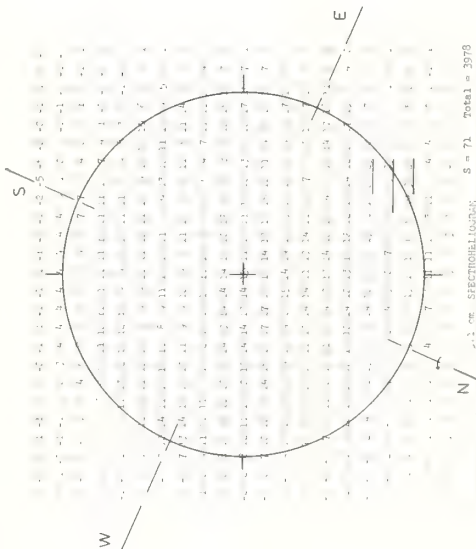
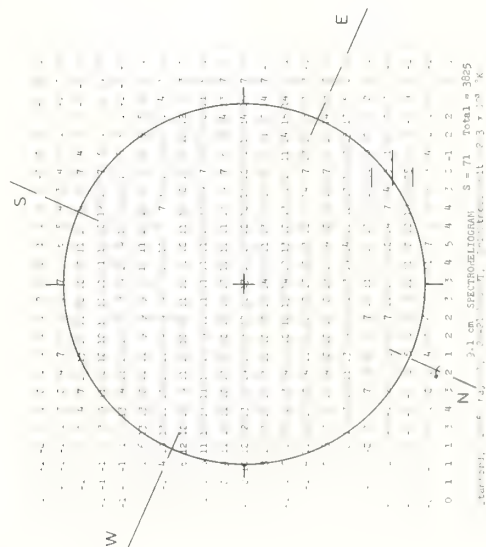


# SOLAR RADIO EMISSION SPECTROHELIOGRAMS

MAY 1965

STANFORD

9.1 cm



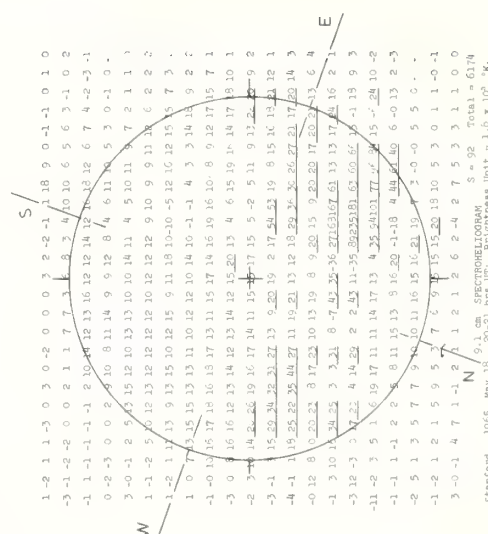
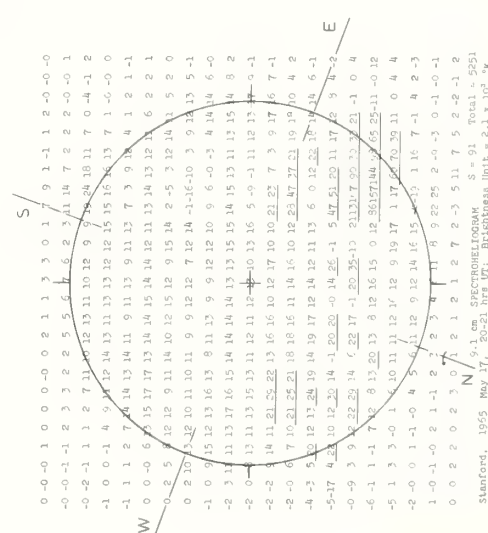
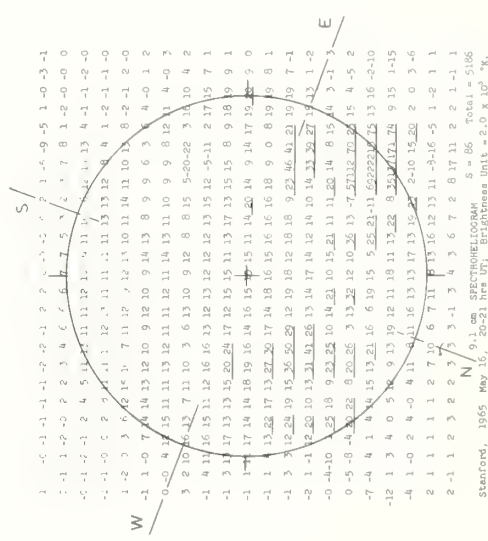
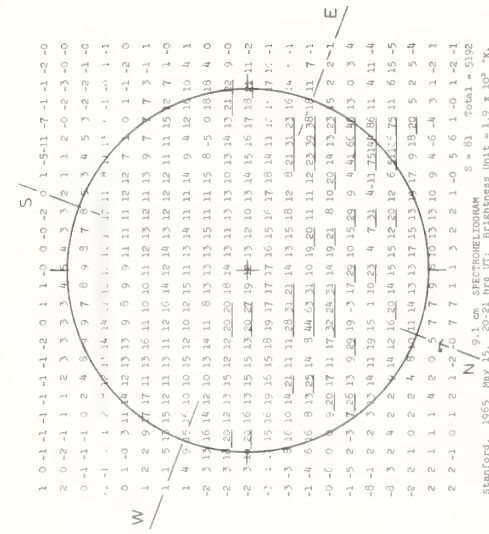
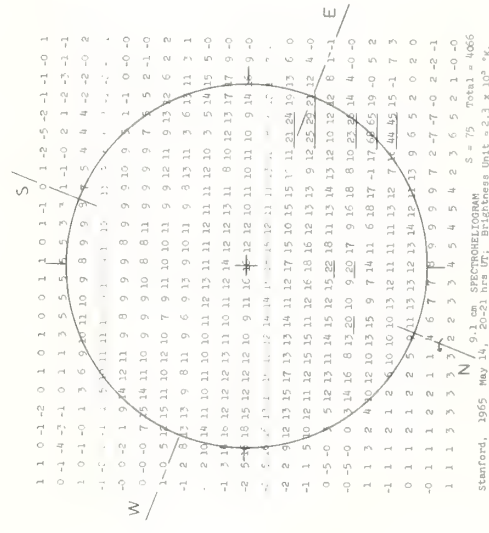
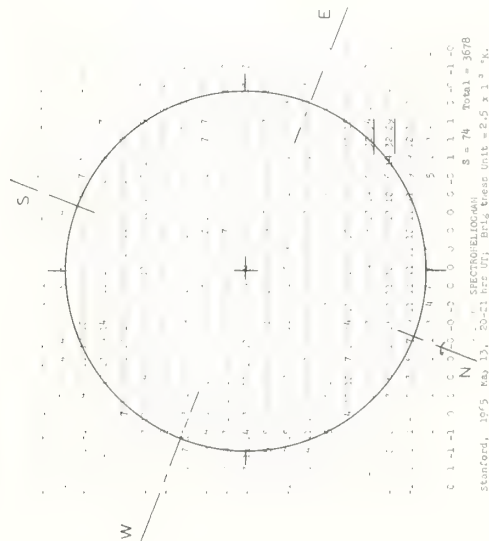


## SOLAR RADIO EMISSION SPECTROHELIOGRAMS

STANFORD

MAY 1965

9.1 cm

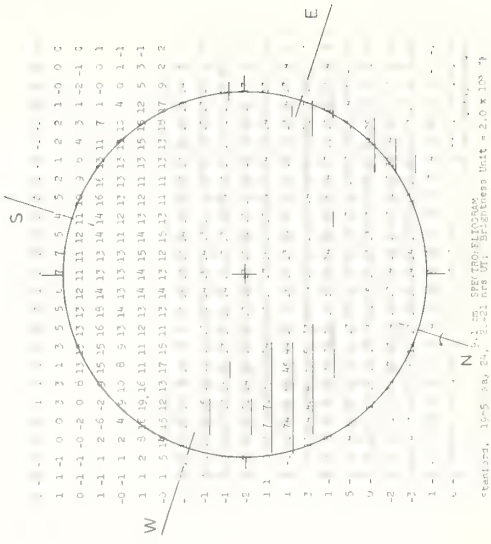
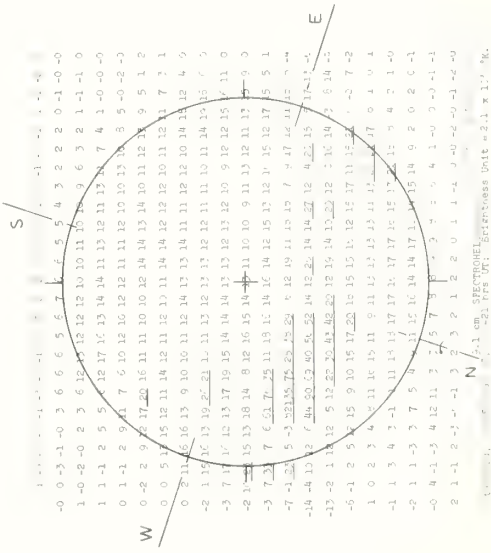
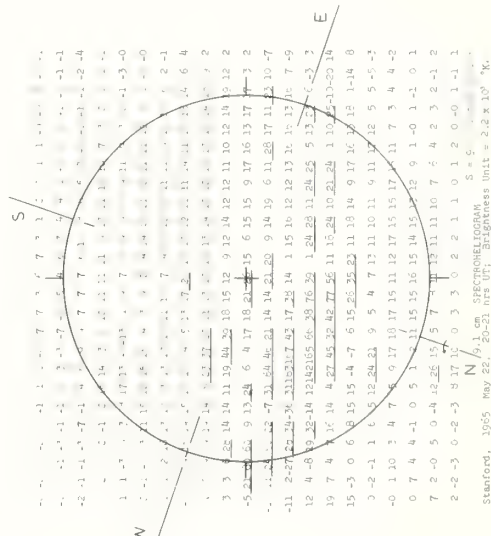
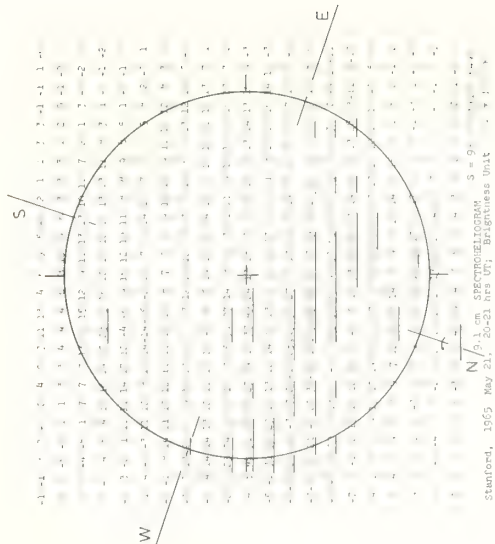
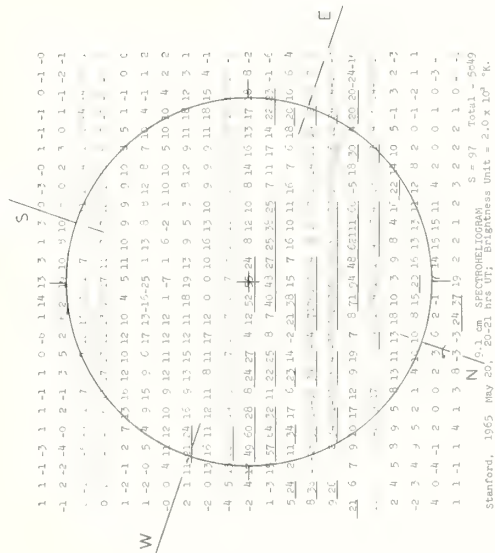
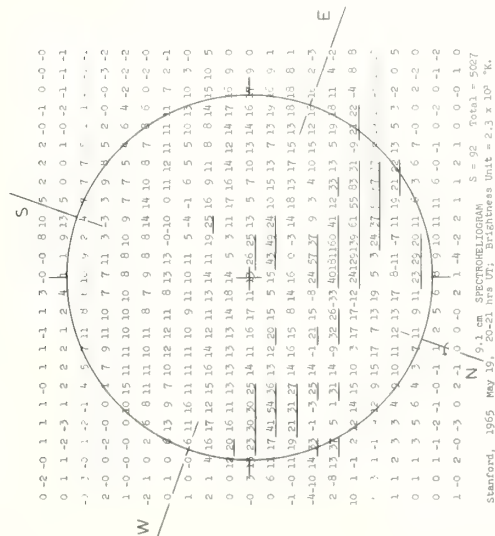


# SOLAR RADIO EMISSION SPECTROHELIOGRAMS

STANFORD

MAY 1965

9.1 cm



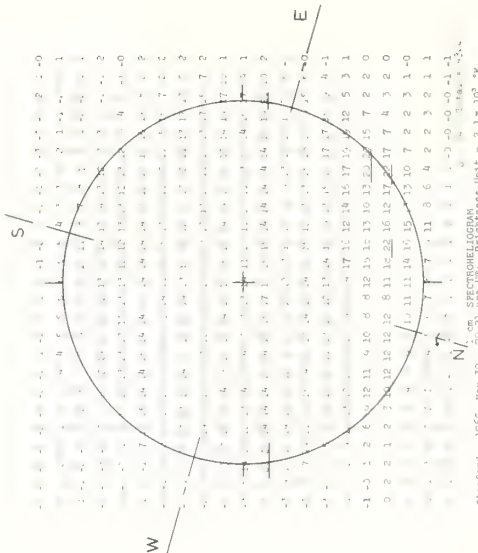
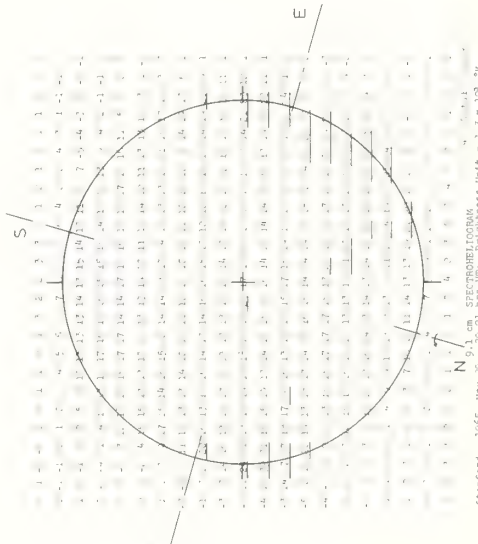
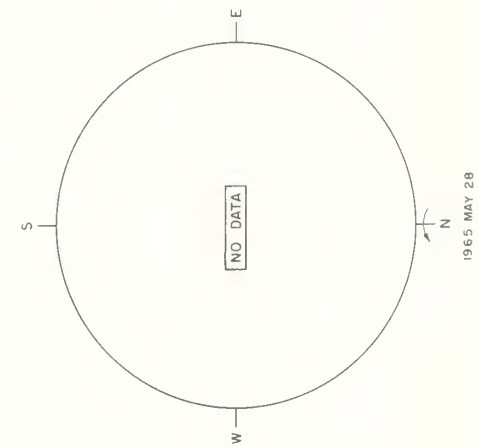
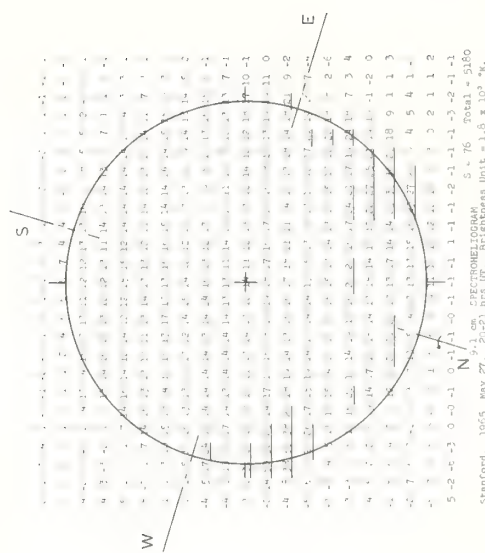
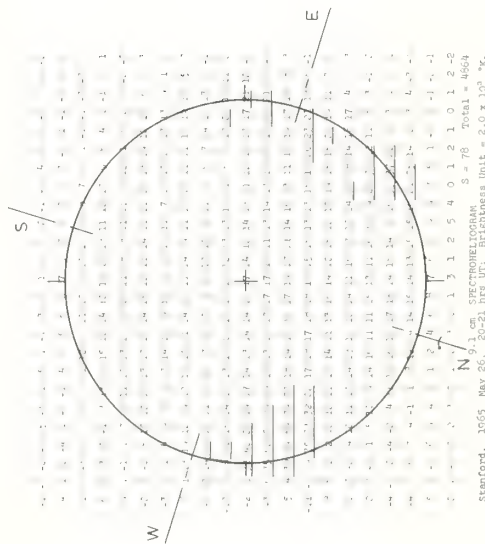
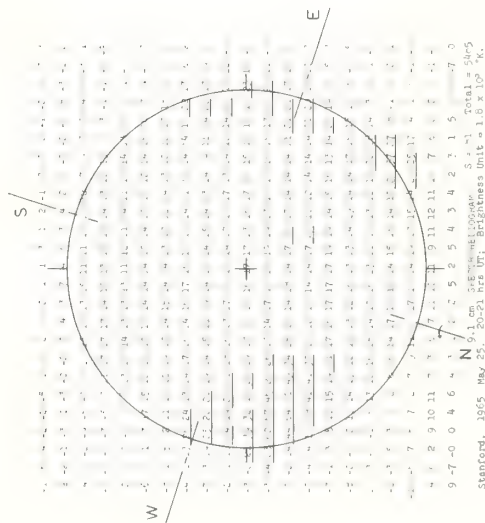


# SOLAR RADIO EMISSION SPECTROHELIOGRAMS

STANFORD

MAY 1965

9.1 cm

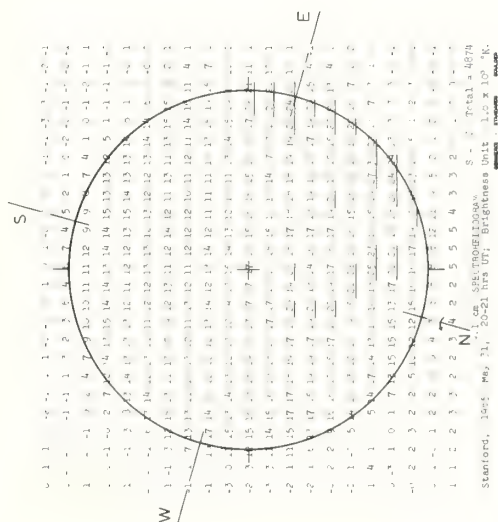




## SOLAR RADIO EMISSION SPECTROHELIOGRAMS

MAY 1965

STANFORD

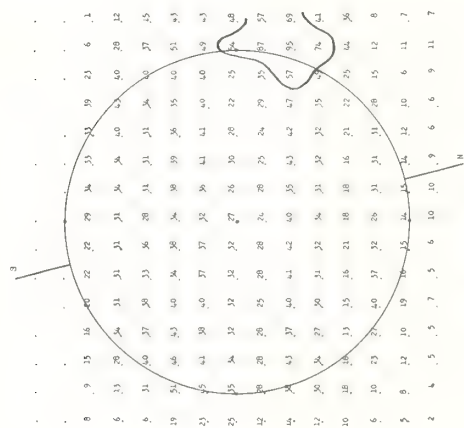


# SOLAR RADIO EMISSION SPECTROHELIOGRAMS

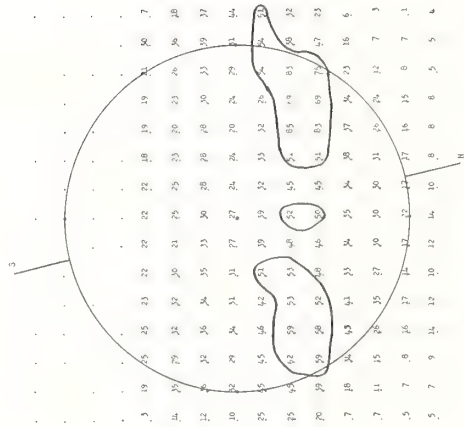
DECEMBER 1964

FLEURS, AUSTRALIA

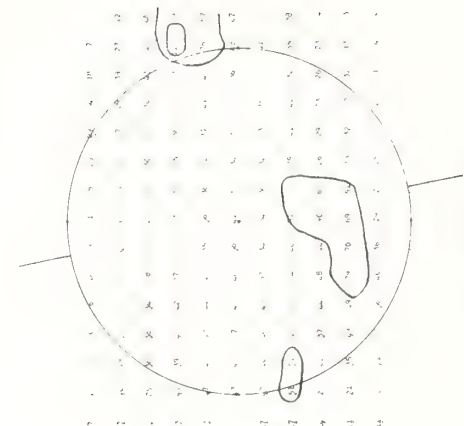
21 cm  
Resolution about 3 minutes  
of arc.  
Unit of Brightness  
Temperature: 1700°K



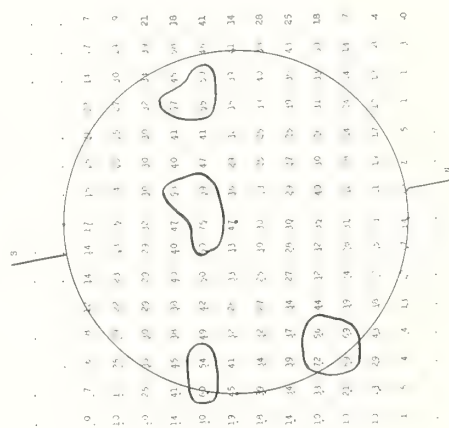
1964 DECEMBER 4 0230 UT



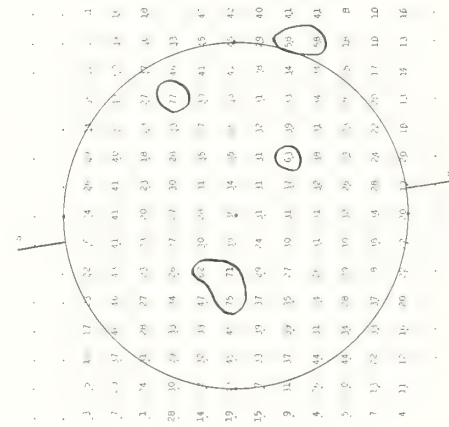
1964 DECEMBER 7 0230 UT



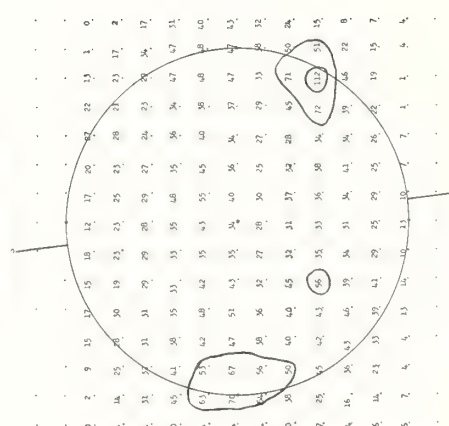
1964 DECEMBER 11 0230 UT



1964 DECEMBER 16 0230 UT



1964 DECEMBER 18 0230 UT



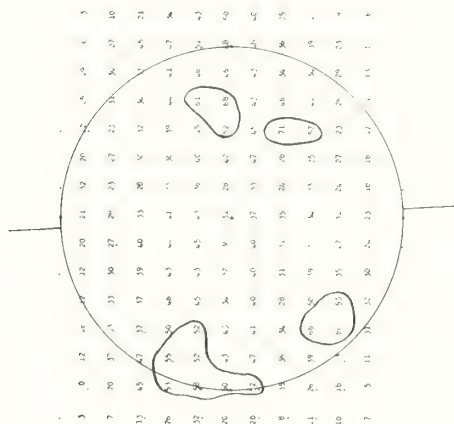
1964 DECEMBER 21 0230 UT

# SOLAR RADIO EMISSION SPECTROHELIOGRAMS

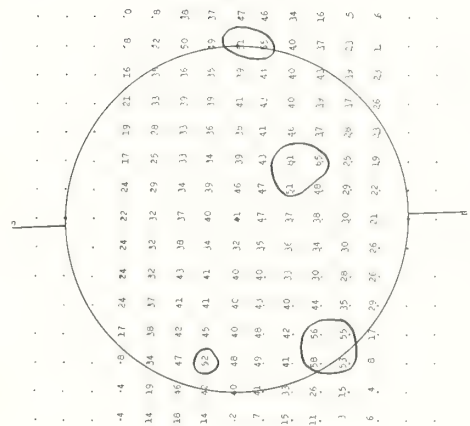
FLEURS, AUSTRALIA

DECEMBER 1964 - JANUARY 1965

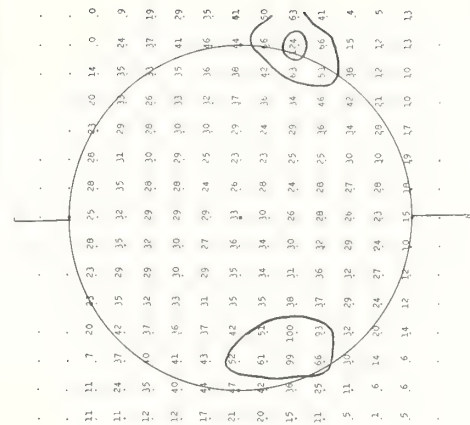
21 cm  
Resolution: about 3 minutes  
of arc.  
Unit of Brightness  
Temperature: 1700°K



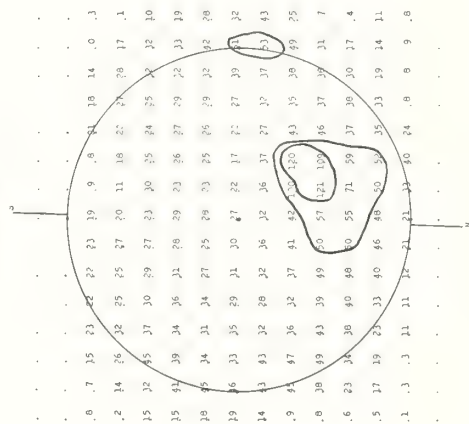
1964 DECEMBER 29 0230 UT



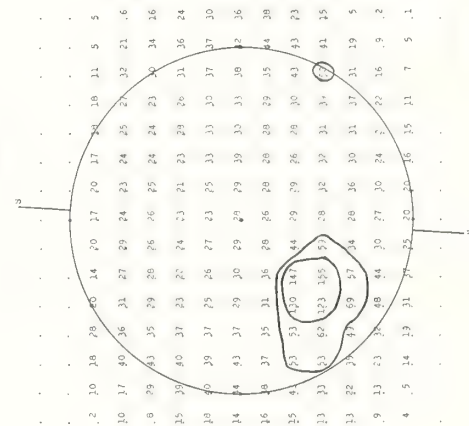
1964 DECEMBER 30 0230 UT



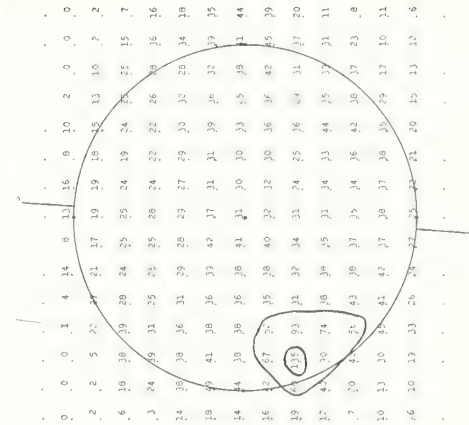
1965 JANUARY 4 0230 UT



1965 JANUARY 8 0230 UT



1965 JANUARY 11 0230 UT



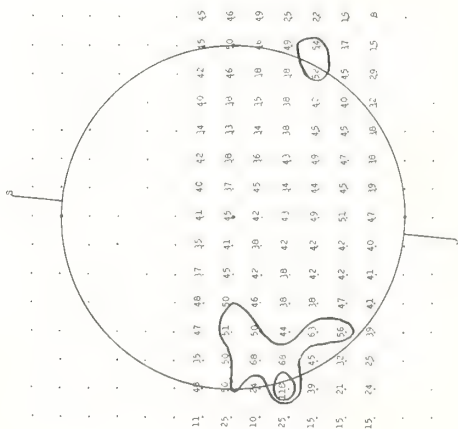
1965 JANUARY 13 0230 UT

## SOLAR RADIO EMISSION SPECTROHELIOGRAMS

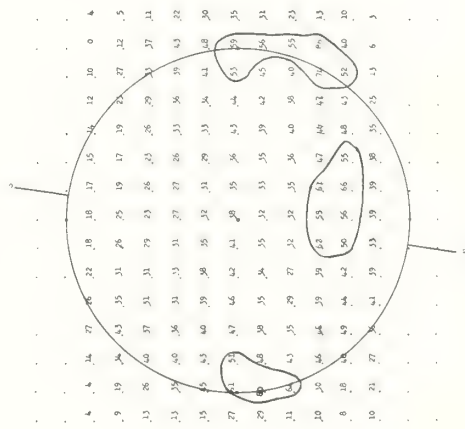
JANUARY 1965

FLEURS, AUSTRALIA

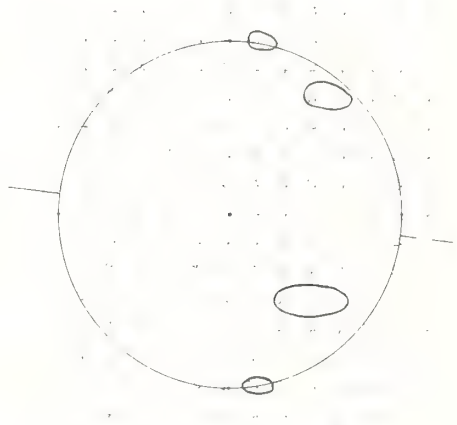
21 cm  
Resolution: about 3 minutes  
of arc.  
Unit of Brightness  
Temperature: 1700° K



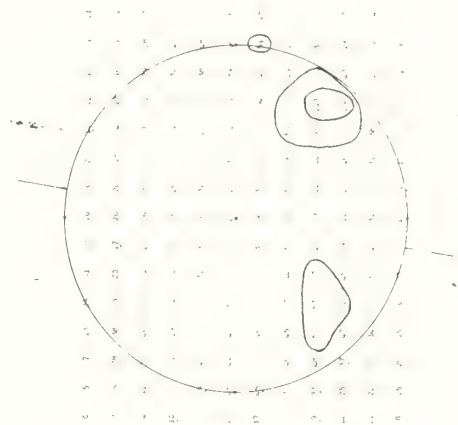
1965 JANUARY 15 0230 UT



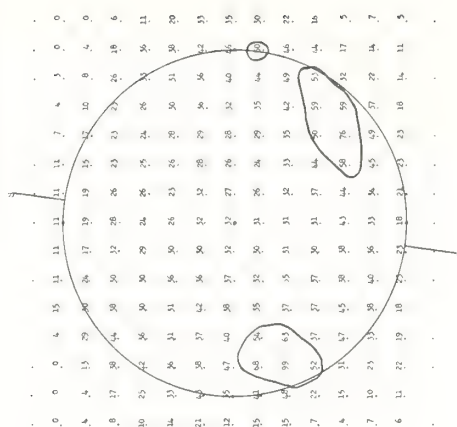
1965 JANUARY 22 0230 UT



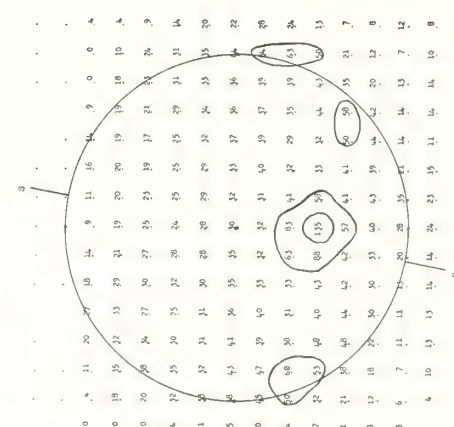
1965 JANUARY 18 0230 UT



1965 JANUARY 25 0230 UT



1965 JANUARY 20 0230 UT



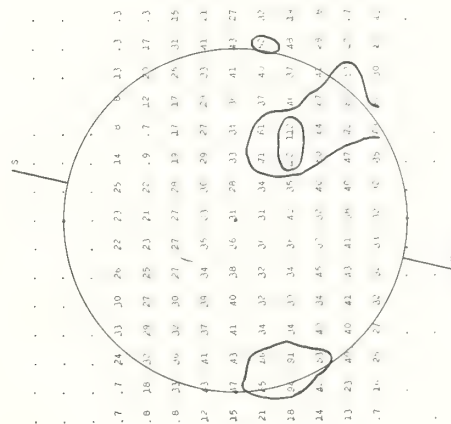
1965 JANUARY 28 0230 UT

# SOLAR RADIO EMISSION SPECTROHELIOGRAMS

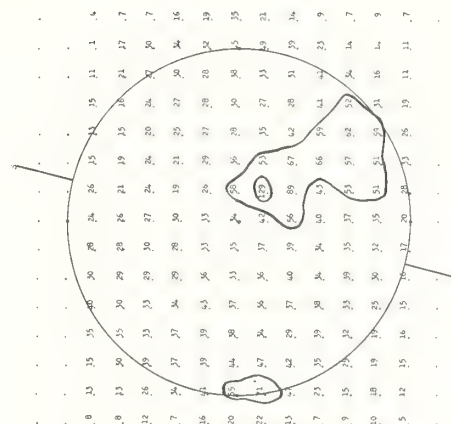
FLEURS, AUSTRALIA

FEBRUARY 1965

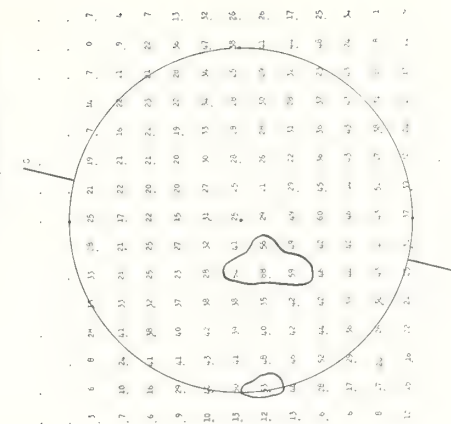
21 cm  
Resolution: about 3 minutes  
of arc.  
Unit of Brightness  
Temperature: 1700° K



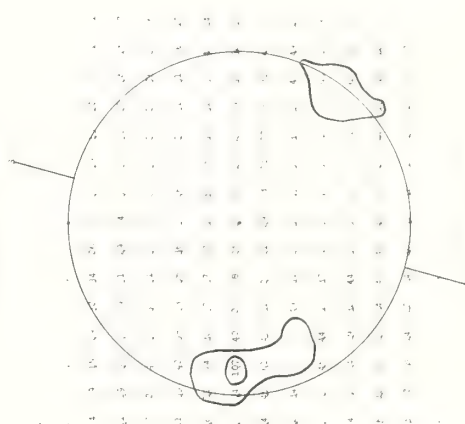
1965 FEBRUARY 2 0230 UT



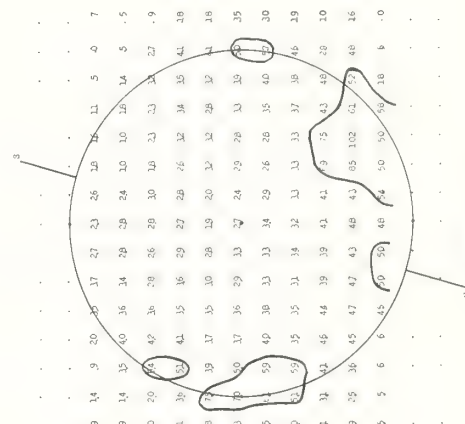
1965 FEBRUARY 3 0230 UT



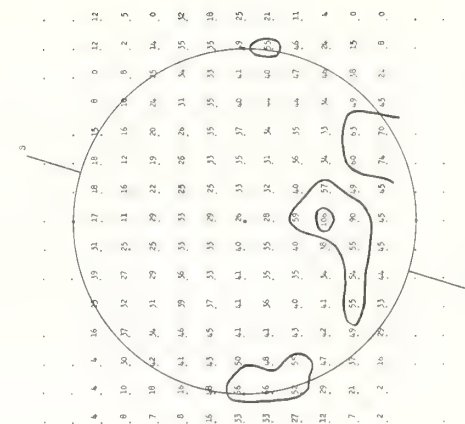
1965 FEBRUARY 5 0230 UT



1965 FEBRUARY 8 0230 UT



1965 FEBRUARY 10 0230 UT



1965 FEBRUARY 12 0230 UT

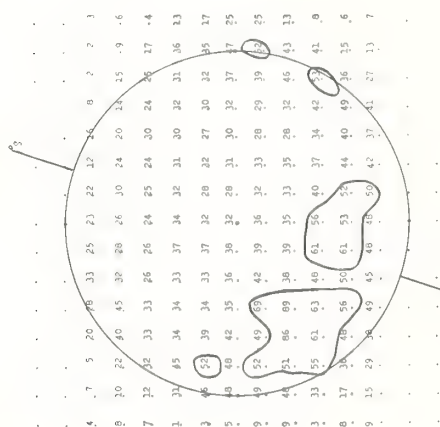


# SOLAR RADIO EMISSION SPECTROHELIOGRAMS

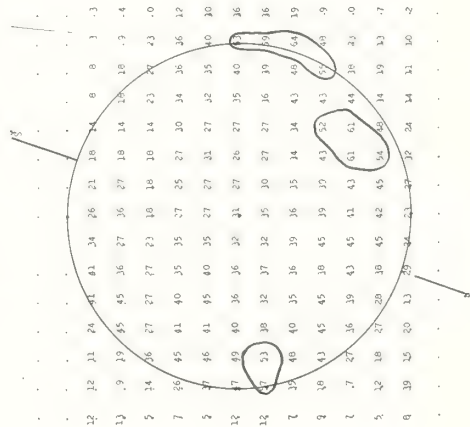
FEBRUARY 1965

FLEURS, AUSTRALIA

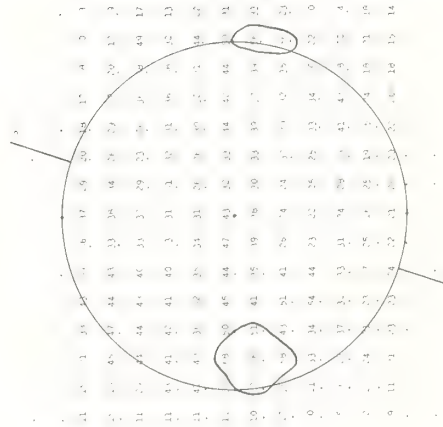
21 cm  
Resolution about 3 minutes  
of arc  
Unit of Brightness  
Temperature: 1700°K



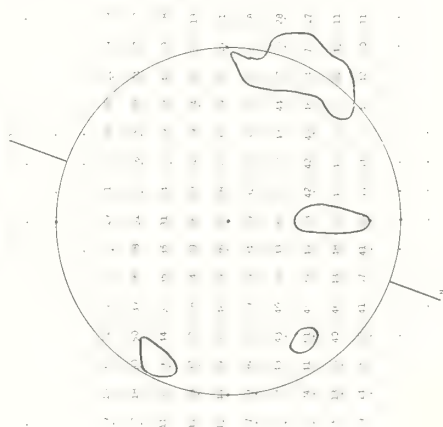
1965 FEBRUARY 15 0230 UT



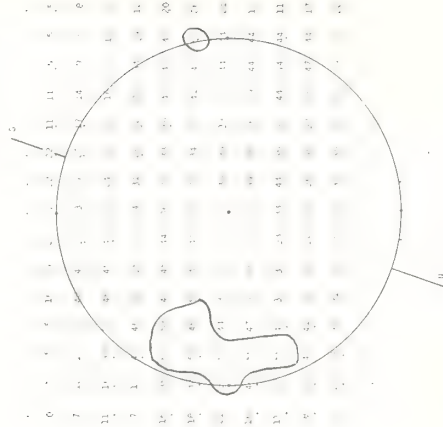
1965 FEBRUARY 22 0230 UT



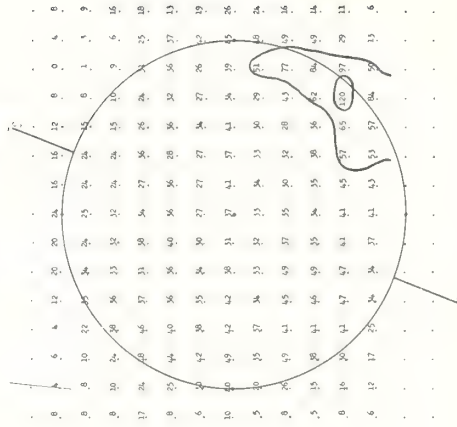
1965 FEBRUARY 17 0230 UT



1965 FEBRUARY 24 0230 UT



1965 FEBRUARY 19 0230 UT



1965 FEBRUARY 26 0230 UT



# COSMIC RAY INDICES

## (Neutron Monitors)

APRIL 1965

April 1965	CHURCHILL	CLIMAX	DALLAS
	DAILY AVERAGE COUNTS PER HOUR	DAILY AVERAGE COUNTS PER HOUR	DAILY AVERAGE COUNTS PER HOUR
1	6599.5	3381.5	6646.5
2	6583.2	3379.6	6625.6 (22)
3	6593.5	3384.0	6638.9
4	6592.9	3388.3	6646.0
5	6580.1	3301.1	6652.4 (19)
6	6597.9	3375.9	6640.3
7	6595.8	3384.3	6646.4
8	6605.8	3378.8	6631.5
9	6601.5	3401.1	6658.8
10	6612.2	3408.9	6658.6
11	6620.4	3406.0	6673.8
12	6616.1	3398.9	6698.0
13	6622.4	3387.6	6681.7
14	6625.5	3384.4	6664.3
15	6642.3	3394.6	6679.6
16	6675.7	3398.5	6701.7
17	6666.8	3392.9 (28)	6697.2
18	6573.2	3352.0 (2)	6726.1
19	6553.3	3392.5 (4)	6656.3
20	6566.1	3367.7	6662.3
21	6568.8	3364.9	6655.8
22	6568.9	3373.5	6672.2
23	6554.8	3380.3	6662.6
24	6575.0	3383.7	6657.8
25	6591.4	3391.0	6664.6
26	6607.3	3398.4	6683.2
27	6605.2	3394.6	6671.5
28	6632.5	3391.3	6681.2
29	6644.5	3381.4	6682.4
30	6621.3	3376.8	6679.6

COMMERCE - STANDARDS - BOULDER

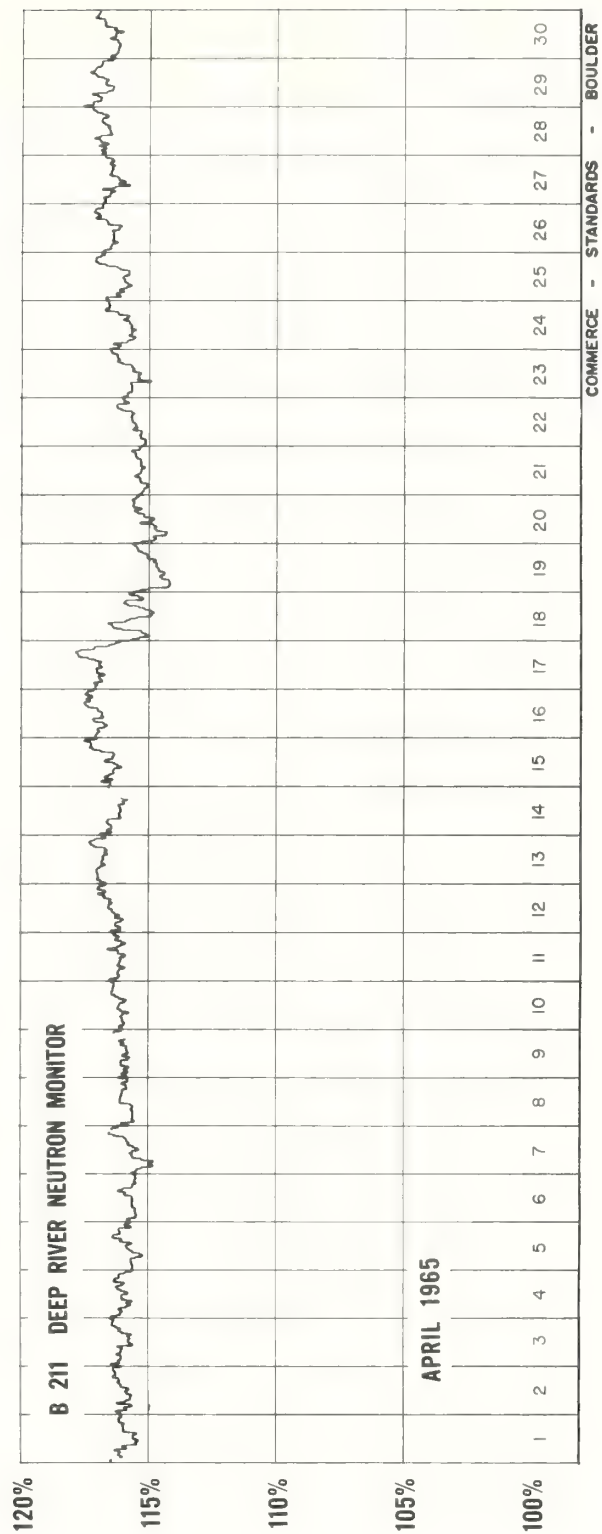
( ) Number of hours for which data are available if less than 24 (or number of section hours if less than 40 for Climax).

Churchill Super Neutron Monitor, Scaling Factor 120.

Climax IGC Station B305, Scaling Factor 128.

Dallas Super Neutron Monitor, Scaling Factor 120.

# **COSMIC RAY INDICES** **(Pressure Corrected Hourly Totals)**

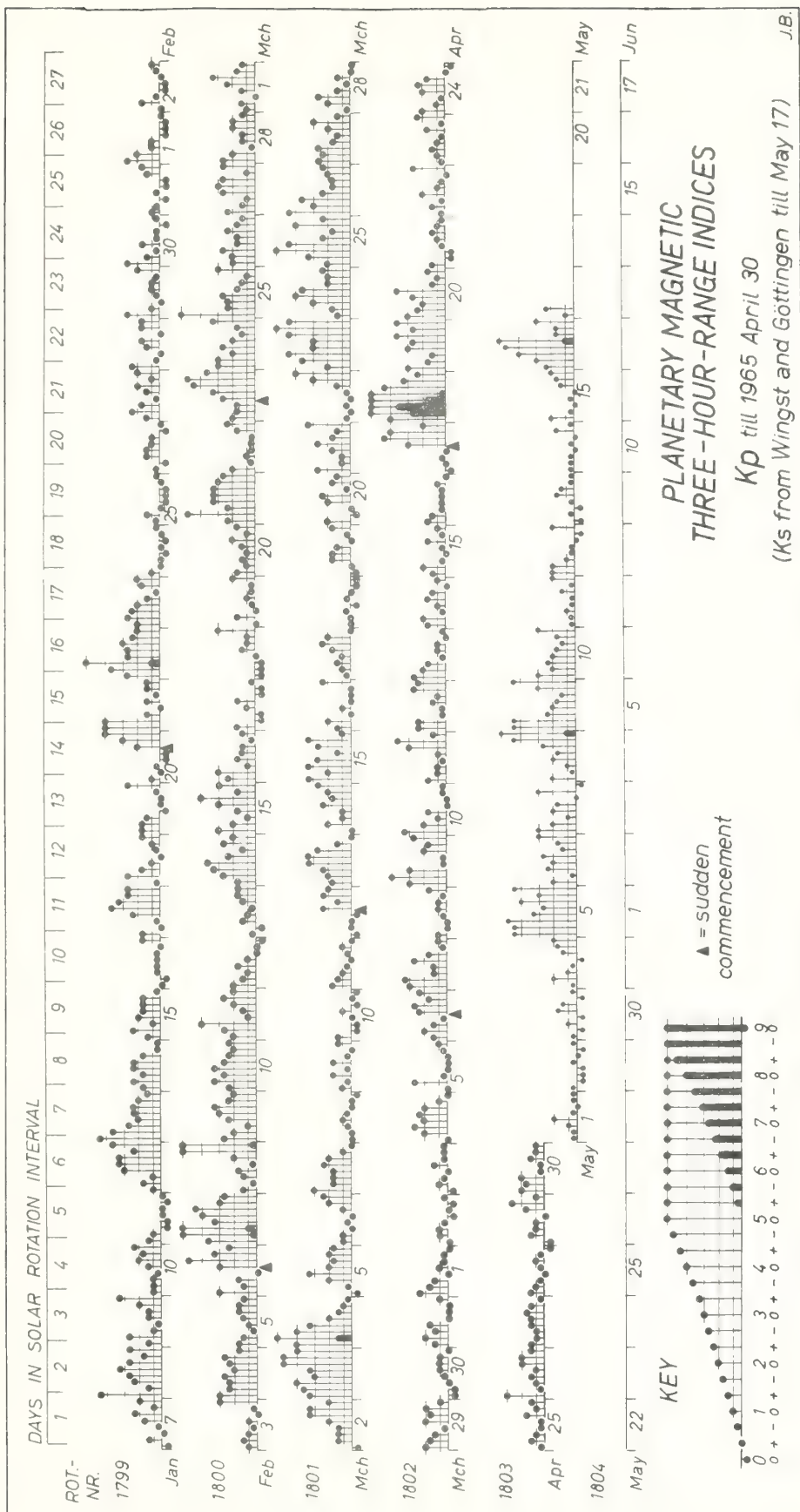


## GEOMAGNETIC ACTIVITY INDICES

APRIL 1965

April 1965	C	Values Kp								Sum	Ap	Final Selected Days	
		Three hour Gr. interval											
		1	2	3	4	5	6	7	8				
1	0.0	2+	2-	1+	0+	1o	1-	1-	0+	8+	4	Five Quiet	
2	0.0	0+	1o	1o	1-	0o	0+	0o	1-	4o	2		
3	0.0	0o	1o	1-	0+	1+	1-	1-	1-	5+	3		
4	0.5	0+	2o	3-	2o	2+	2o	1o	0+	13-	6		2
5	0.1	0+	3-	1-	0+	0+	0+	1-	1o	6+	4		3
6	0.4	1+	2o	1+	1-	2+	3-	2-	2+	14+	7	8	
7	0.4	3o	3+	1+	1+	3-	2-	1-	1o	15o	8	21	
8	0.2	1o	0+	0+	1-	1o	1o	1-	2-	7-	4	28	
9	0.6	3o	4o	3o	1-	1-	2o	2-	3-	18-	11		
10	0.3	3+	2o	1o	2-	0+	0+	1-	1-	10o	6		
11	0.7	2-	1o	1o	1-	1o	3o	4-	1+	13+	8	Five Disturbed	
12	0.5	2+	2+	1-	1-	1+	1o	3-	2+	13+	7		
13	0.3	3-	2o	2-	1-	1o	1o	0+	1-	10o	5		
14	0.2	2-	2o	1-	1o	2-	1+	0+	1o	10-	5		9
15	0.2	1+	2o	1-	0+	1-	2-	1-	2o	8+	4		17
16	0.2	2-	1+	1-	1-	1-	1-	1o	0+	7o	4	18	
17	0.9	0o	0+	1-	0+	3o	4+	4o	2o	15-	11	19	
18	1.8	4o	7o	8-	6+	5+	4+	3+	2+	40+	68	20	
19	1.0	3o	2-	1+	3o	3-	4-	3-	4-	22-	14		
20	0.8	3o	2+	2o	3-	4-	1+	1o	2-	18-	10		
21	0.2	1+	0o	0o	1-	1o	1+	1o	1-	6o	3	Ten Quiet	
22	0.4	1-	1+	1-	2o	1o	1-	0+	3-	9+	5		
23	0.2	1-	1o	1+	1o	1-	2-	1-	2+	9+	5		
24	0.3	2o	1o	1-	2o	2+	2-	0+	0o	10o	5		1
25	0.2	1-	1+	1o	1-	1-	2-	1o	1+	8+	4		2
26	0.4	3o	1-	1o	1+	1o	2o	2o	1+	12+	6	3	
27	0.2	1+	1o	1o	1+	1+	2-	1+	1-	10-	5	5	
28	0.1	1+	1o	1-	0+	1-	1o	1-	0o	6-	3	8	
29	0.4	0o	1+	1o	1o	0+	2-	3-	1o	9o	5	15	
30	0.2	2o	2-	2o	1-	1-	1+	1o	1o	10+	5	16	
												21	
												25	
												28	
Mean: 0.39										Mean: 8			





## CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

NORTH ATLANTIC, NORTH PACIFIC

APRIL 1965

APR 1965	WHOLE DAY INDICES			ADVANCE FORECASTS (Jc- REPORTS)  FOR WHOLE DAY	NORTH ATLANTIC								NORTH PACIFIC				GEOMAGNETIC INDICES								
					6 - HOURLY QUALITY FIGURES				SHORT - TERM FORECASTS ISSUED ABOUT ONE HOUR IN ADVANCE OF:				6 - HOURLY QUALITY FIGURES				KpR		Afr		Ksi		Asi		
	NORTH ATLANTIC	NORTH PACIFIC	AVERAGE HIGH LATITUDE			00 TO 06	06 TO 12	12 TO 18	18 TO 24	00 TO 06	06 TO 12	12 TO 18	18 TO 24	00 TO 06	06 TO 12	12 TO 18	18 TO 24	HALF (1)	DAY (2)	OB-SERVED	PRE-DICTED	HALF (1)	DAY (2)		
1	7-	6	6	6	6+	6+	7-	7-	7	6	7	7	6	6	6	6	1	1	3	7	1	1	3		
2	7-	6	6	6	7-	6-	7-	7o	7	6	7	7	6	6	6	6	1	0	1	7	0	0	1		
3	7-	6	6	6	7-	6+	7-	7-	7	6	7	7	6	6	6	6	1	1	2	5	0	0	0		
4	7-	6	6	6	6+	6+	7-	7o	7	6	7	7	6	6	6	6	2	2	7	3	2	1	5		
5	7-	6	6	7	7-	6o	7-	7o	7	6	7	7	6	6	6	6	1	1	3	3	0	0	0		
6	6+	6	6	7	6o	6o	7-	7-	7	6	7	7	6	6	6	6	2	2	6	3	1	2	4		
7	6+	7	7	7	6+	6-	7-	7-	6	6	7	7	7	6	7	6	2	1	6	3	2	1	6		
8	6+	7	7	7	6o	5+	7-	7o	6	6	7	7	7	6	7	6	1	1	3	5	0	1	2		
9	6+	6	6	7	6o	5+	7-	7o	6	5	7	7	7	6	7	7	3	2	11	7	2	1	6		
10	6+	7	7	6	6+	6-	7-	7-	6	6	7	7	7	6	6	7	2	1	5	7	2	0	4		
11	6+	6	6	6	6+	6-	7-	7-	6	6	7	7	7	6	6	6	1	2	6	7	1	2	5		
12	6+	7	7	6	6o	5+	7-	7-	6	5	7	7	7	6	7	6	2	2	7	5	1	2	4		
13	6o	7	7	6	6o	5+	7-	7-	6	6	7	7	7	6	7	6	2	1	5	3	1	0	3		
14	6+	7	7	7	6o	6-	7-	7o	6	6	7	7	7	6	7	6	2	1	5	3	1	0	2		
15	6+	7	7	7	6+	6-	7-	7-	6	6	7	7	7	7	7	7	1	1	2	5	1	1	3		
16	6+	7	7	7	7-	5+	7-	7o	6	6	7	7	7	6	7	6	1	1	3	5	2	0	3		
17	6+	7	7	7	6o	6o	7-	7-	7	6	7	6	6	6	7	6	1	3	9	7	0	2	7		
18	(4+)	5	5	6	5o	3o	4+	6-	5	4	5	4	4	4	4	5	(6)	3	48	11	(7)	(4)	34		
19	5+	(4)	5	6	4o	4o	6+	7-	4	4	6	6	6	4	5	5	2	3	11	15	2	3	13		
20	6-	5	5	6	6o	5-	6o	7-	5	5	6	6	6	6	5	5	2	2	9	11	2	2	9		
21	6+	6	6	6	6-	6-	7-	7-	6	5	7	7	7	6	6	6	1	1	3	11	0	1	3		
22	6+	6	6	6	6+	5o	7-	7o	6	6	7	7	7	6	6	6	1	1	4	7	2	1	4		
23	6o	7	7	6	6-	5o	7-	7-	6	5	7	7	7	6	7	6	1	1	5	7	1	1	5		
24	6+	6	6	6	6-	6o	6+	7-	6	5	7	7	7	6	6	6	1	1	4	5	2	1	4		
25	6o	7	7	6	6-	5+	6+	7-	6	5	7	7	7	6	6	7	1	1	3	5	1	1	2		
26	6+	7	7	7	6o	6-	7-	7-	6	5	7	7	7	6	7	7	1	2	5	5	2	1	6		
27	6o	7	7	7	6o	6-	6+	6+	6	6	7	7	7	6	7	7	1	2	5	5	1	1	4		
28	6o	7	7	7	6-	5+	7-	7-	6	6	7	7	7	6	6	7	1	1	3	5	0	1	2		
29	6+	7	7	6	7-	6-	7-	7-	6	6	7	7	7	6	7	7	1	1	5	3	1	1	4		
30	6o	7	7	6	6o	5+	6o	7-	6	6	7	7	7	6	7	7	2	1	6	3	2	1	4		
SCORES																									
QUIET PERIODS:				P	17									22	19	25	25								
				S	13									7	9	4	4								
				U	0									0	0	0	0								
				F	0									0	0	0	1								
DISTURBED PERIODS:				P	0									1	1	0	0								
				S	0									0	1	1	0								
				U	0									0	0	0	0								
				F	0									0	0	0	0								

COMMERCE - STANDARDS - BOULDER

## NOTES:

1. The advance Jc-forecasts are scored against the average high latitude whole day indices.
2. The observed indices for the North Pacific are low weight because of insufficient data available for their preparation.
3. The predicted Afr indices are issued each Wednesday for the coming seven days. The value for the first day of each prediction period is underscored.

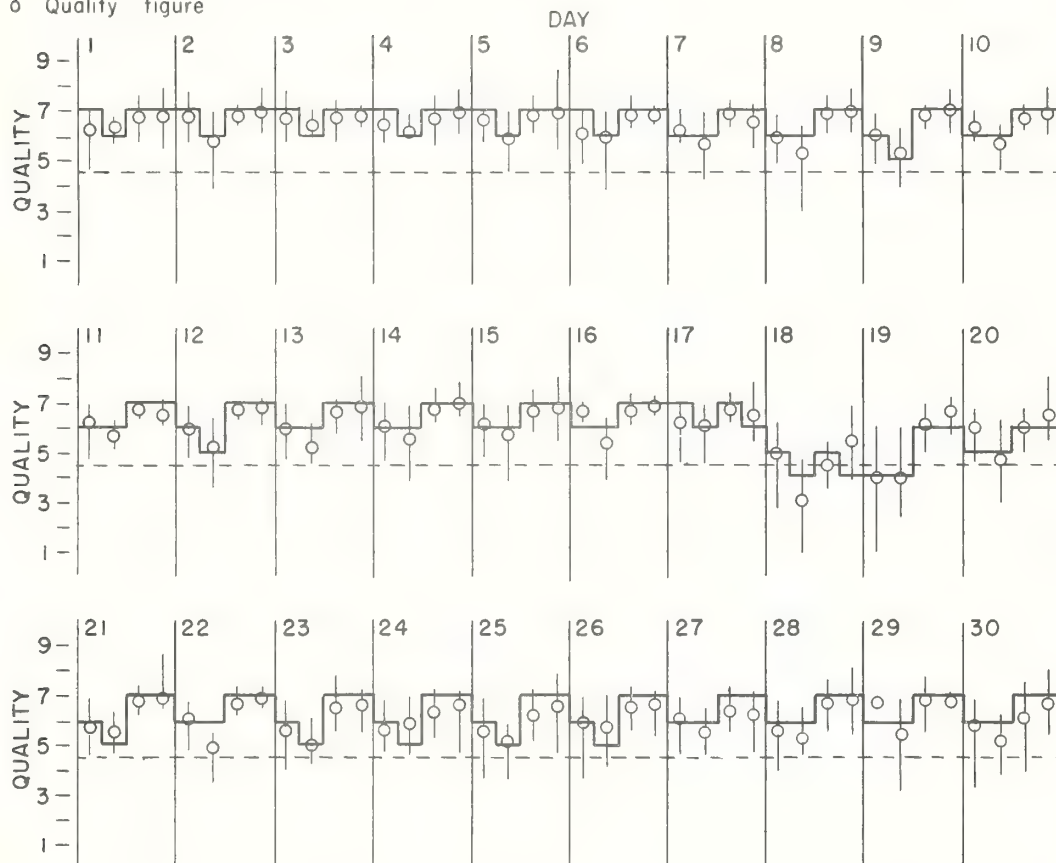
NORTH ATLANTIC

APRIL 1965

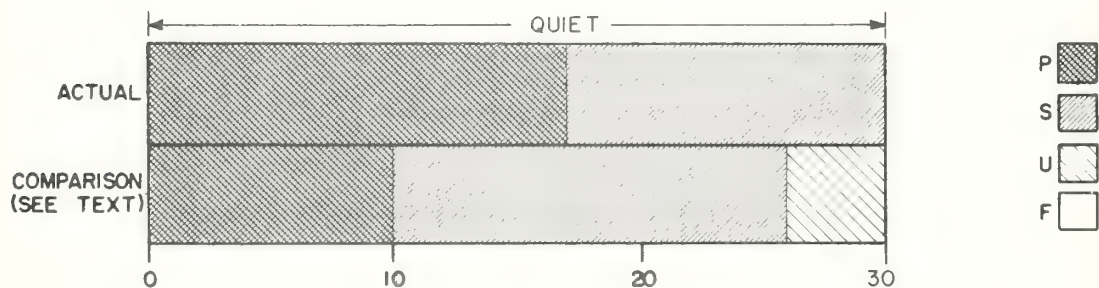
— Short-term forecast

o Quality figure

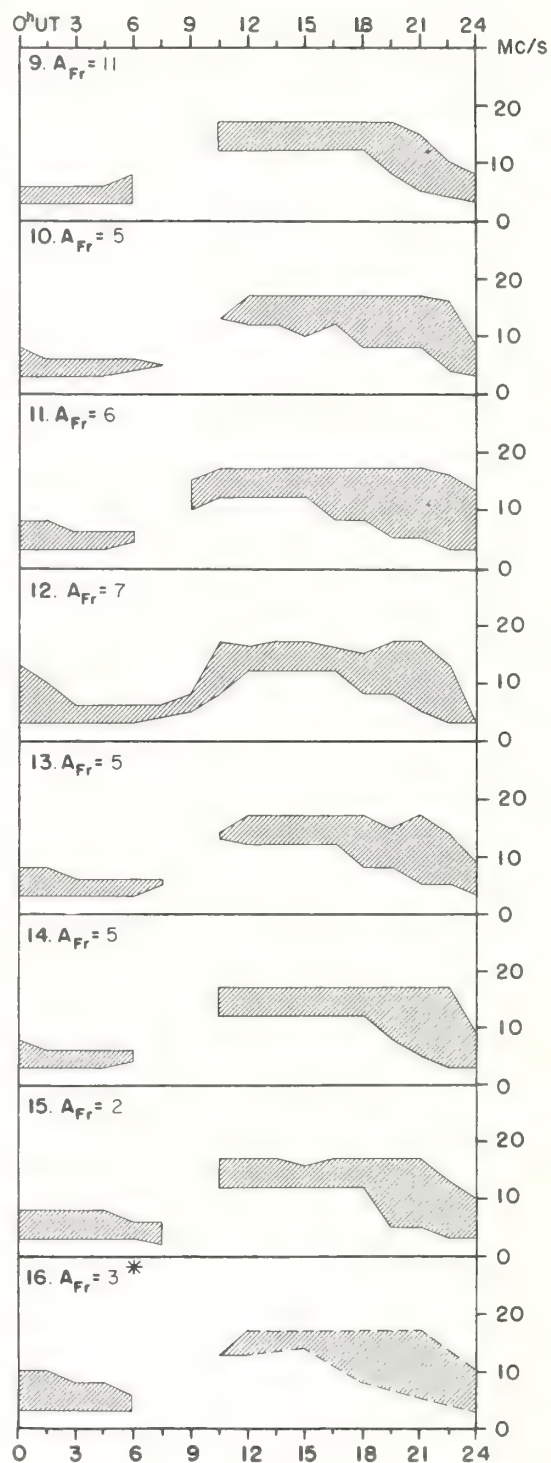
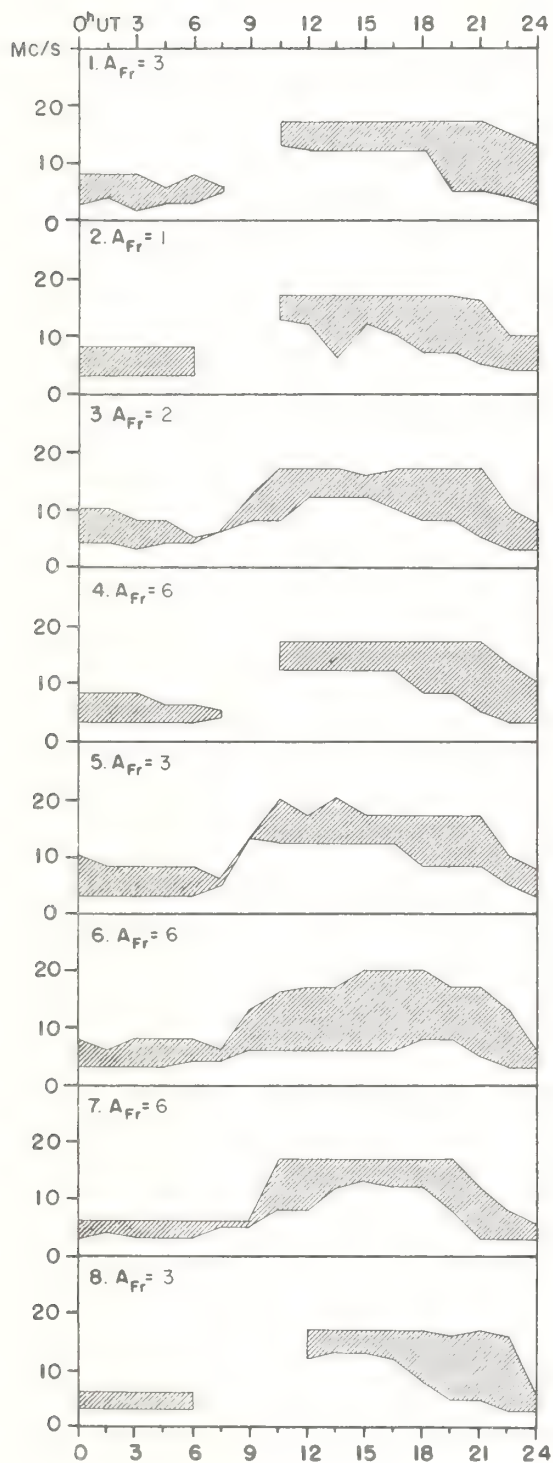
| Range of reports



HIGH LATITUDE



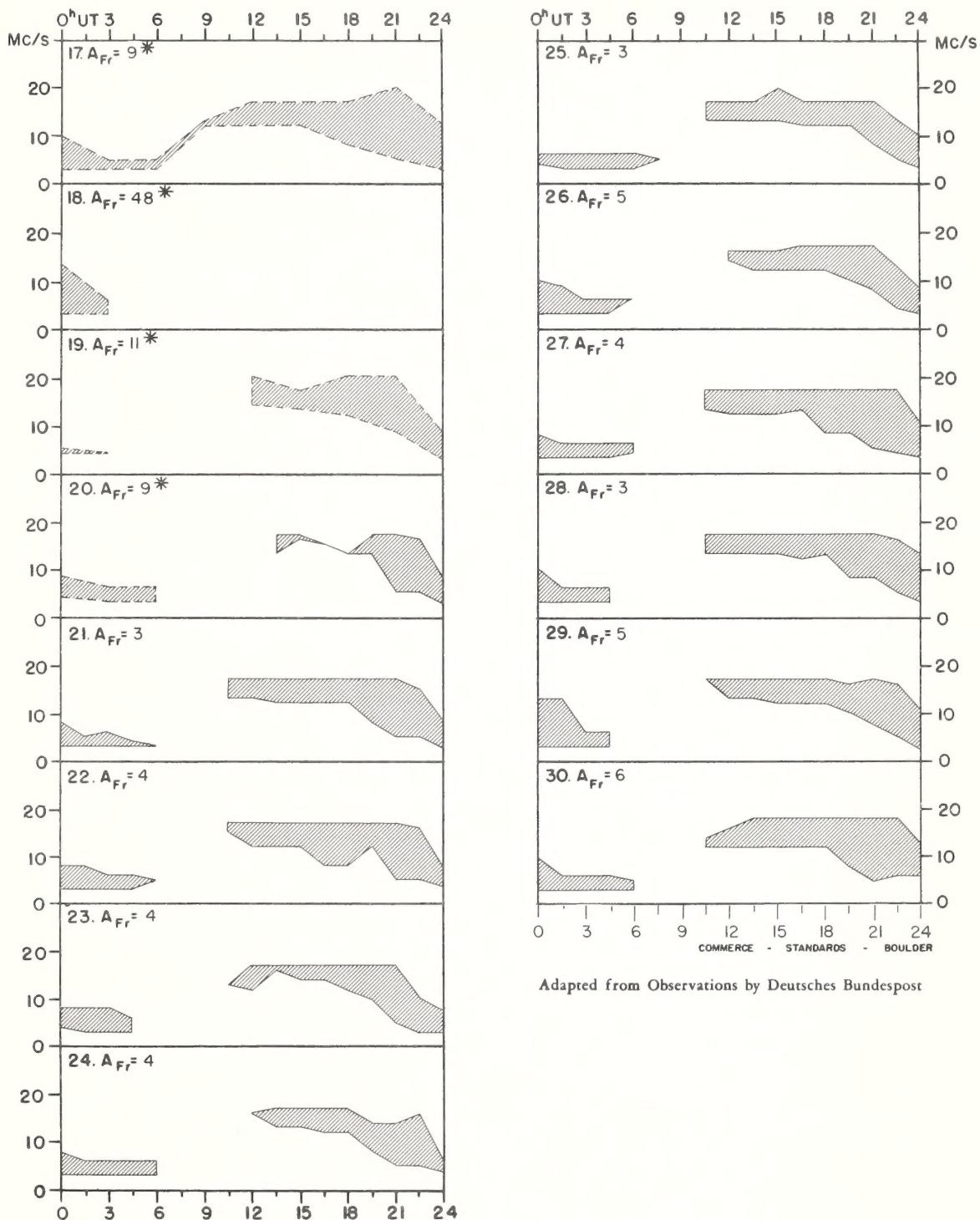
APRIL 1965



COMMERCE - STANDARDS - BOULDER



APRIL 1965



Adapted from Observations by Deutsches Bundespost

Note: Observations were reported for every third hour instead of each one and one-half hours from April 16, 1200 UT to April 20, 0600 UT, 1965.



## IQSY ALERT PERIODS

INTERNATIONAL URSIGRAM  
AND WORLD DAYS SERVICE

MAY 1965

May 1965	TIME OF ISSUE UT	ADVANCE GEOPHYSICAL ALERT	WORLDWIDE GEOPHYSICAL ALERT			
			NO.	TYPE	TIMING	ELABORATION
2	0400		196	Solar Activity	Exists	East Limb
3	0400		197	Solar Activity	Exists	
4	0400		198	Solar Activity	Exists	
15	0400		199	Solar Activity	Exists	East Limb
16	0400		200	Solar Activity	Exists	
17	0400		201	Solar Activity	Exists	Flares
18	0400		202	Solar Activity	Exists	
19	0400		203	Solar Activity	Exists	
20	0400		204	Solar Activity	Exists	
21	0400		205	Solar Activity	Exists	
22	0400		206	Solar Activity	Exists	
23	0400		207	Solar Activity	Exists	

COMMERCE - STANDARDS - BOULDER

Note: 1964 July 23-28 and September 19-20 have been designated QUIETSUN Retrospective World Interval, and  
 1964 September 21-24 has been designated IONQMGSTORM Retrospective World Interval.  
 This information was sent with the May 17 Geophysical Alert.



